

COMPUTER SHOPPER™

\$2.25
E 02927

MONEY SAVING
ADS & ARTICLES

Newest Computer
Game Craze:

NFL CHALLENGE™



In This Issue...

- Franklin's New Ace 2000 Computer
- The Correspondent, Program For Mod 4
- Do Surge Protectors Protect?
- Robotics Column

From **XOR**™
CORPORATION

49¢ Diskettes

Communications Electronics Inc. 800-USA-DISK

Premium Quality! 100% Error Free! Lifetime Warranty!
DISKS For Apple SS/DD-40tk DS/DD
from 33¢ from 46¢ from 54¢
UNITECH (800)343-0472 IN MASS (617) "UNI-TECH" see ad index

Don't Risk The Unknown

Brand Name Diskettes at the Lowest Prices!
Disk World! See Ad Index!

THE WORLD'S LARGEST COMPUTER MAIL ORDER FIRM
CONROY-LA POINTE

See Ad Index

Formerly **Computer Exchange**

CALL **NEED A PRINTER?**
MidWest Micro-Peripherals
1-800-423-8215



10mb 1/2 Height 245.
20 mb Hi Speed 435.
30mb Hi Speed 899.
256K - 2.85

4164K
79¢

American
Semiconductor
1-800-237-5758

RAM 64K QTY. .49!
256K EA. 2.59!
CALL NOW! PROTO PC INC. (612) 644-4660 PLEASE SEE AD INDEX

FREE! DISK DATA FILE WITH PURCHASE OF 50
VERIFLEX DISKS. CALL 1-800-USA-FLEX

See ad index for our full page ad! USA-FLEX

America's Mailorder Headquarters

Lycor Computer

World's Leader in Sales and Service

See Pages
16 & 17

256K
\$2.69 **D-RAM**
Qty 1 9/23/85

High Quality 150ns Parts
Microprocessors Unlimited
(918) 267-4961
See Ad Index

See Advertiser's Index Page 273



NEED A PRINTER?

SAVE WITH CONFIDENCE - CALL MIDWEST MICRO



NO TAX CHARGED TO RESIDENTS OUTSIDE OHIO
SAME DAY SHIPPING ON ALL ITEMS IN STOCK
TECHNICAL SUPPORT

PRICE GUARANTEE

We at MidWest Micro guarantee that we can save you up to 49% or more on your purchase of new fully warranted equipment and supplies. And we will still give you friendly, courteous service. Call today and Save With Confidence!

FAST RELIABLE SERVICE
Call Sue, Kathy, Robin, or Ray for your computer product needs.
ONE CALL SHOPPING TOLL FREE



BEST DEALS — FULL SUPPORT — NEW SUPER SERIES MODELS

Get great hard copy and near letter quality with . . .



SG-10

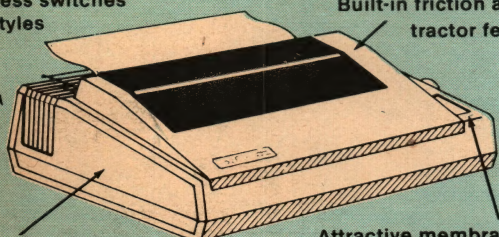
(REPLACES THE GEMINI 10X)

** Price Too Low To Advertise*

LIST ~~\$299~~

Easy access switches for typestyles

Built-in friction and tractor feed

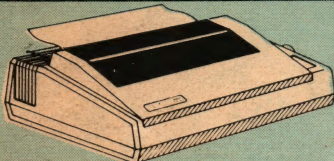


Built-in 2k print buffer

Attractive membrane control panel

If you are looking for a top quality printer at an affordable price, you've found both in the new Star SG-10. The SG-10 operates bi-directionally at 120 cps and includes many special features such as near letter quality printing, easy access format switches for a wide range of character modes and character sets, friction feed for single sheets, and tractor feed for fanfold paper, and even hex dump. Another special feature is the IBM character sets available at the flip of a switch.

These features give the SG-10 versatility enough for home or office. There is also a 2K buffer standard and is expandable to 8k that lets you continue to work without waiting on your printer. Easy to interface with all popular computers such as IBM, Apple, Atari, Commodore, Sanyo, and Zenith. Breakdowns are virtually unheard of with the SG-10 manufactured by the company with thirty-five years of micro-precision experience for quality and reliability. Whatever your personal computer, Star's SG-10 provides reliable and flexible performance so your needs will be met today . . . and tomorrow.



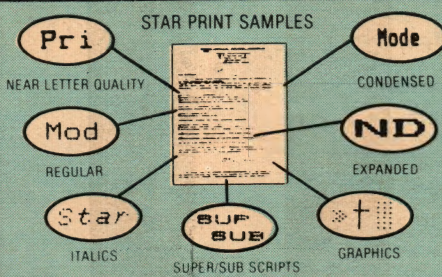
SG-15

** \$Call & Save\$*

Get the Star Micronics advantage and the proven performance of the new super series. This 15 inch carriage model can handle your big report and spreadsheet needs. And word processing is a breeze with the built-in near letter quality print mode. The SG-15 even comes standard with an 8 page print buffer to save you more time than ever.



Buy from the nations largest Direct Authorized Star Micronics Dealer and Service Center



NOW Get performance, savings, and peace of mind with. . .

Complete



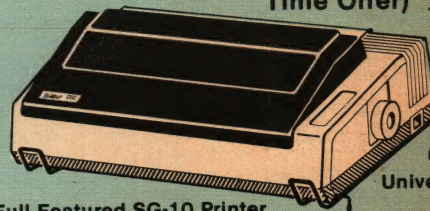
SG-10

PRINTER PACKAGE

From MidWest Micro

JUST ~~\$269~~ (Limited Time Offer)

Save \$199



Full Featured SG-10 Printer \$299 Value

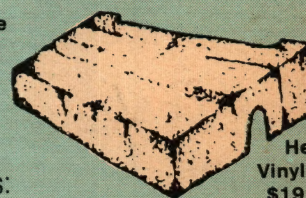


Ribbons \$18 Value

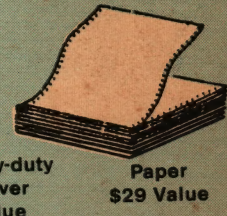
Universal Printer Stand \$49 Value



Popular Miniature Computer Clock \$19 Value



Heavy-duty Vinyl Cover \$19 Value



Paper \$29 Value

Printer Package Includes:

1. Full Featured **star SG-10 Printer**
2. A **Universal Printer Stand** which tilts printer toward you for easy access and creates space for organizing paper
3. Attractive **Heavy-Duty vinyl Printer Cover** - anti-static and anti-dust
4. Plenty Pack of 20# bond clean-edge fanfold **Paper**
5. 2 Super length **Ribbons** for SG-10
6. **Miniature Computer Clock** with 5 function quartz works and swivel monitor stand
7. Full **1 year Warranty** parts and labor
8. Free use of MidWest Micro's Customer **Support Hot Line** (513-663-4992)
9. 14 Day **Money Back Guarantee** (Applicable to this special package only)

Complete Star Line. . .

The star printer line includes a number of fast, efficient and cost effective models. Call MidWest Micro and let us help you select one today!

SD-10 (160 cps, 80 Col, NLQ Mode) . . . ~~\$499~~ *CALL
SD-15 (160 cps, 132 Col, NLQ Mode) . . . ~~599~~ *CALL

SR-10 (200 cps, 80 Col, NLQ Mode) . . . ~~\$649~~ *CALL
SR-15 (200 cps, 132 Col, NLQ Mode) . . . ~~799~~ *CALL

SB-10 (24 pin head) . . . ~~\$949~~ *CALL
POWERTYPE DAISYWHEEL . . . ~~499~~ *CALL



SERVICE & REPAIR
★★ SPECIAL ★★

Factory Authorized Service Center

Experience our fast. . . efficient factory authorized service at a special rate of just **\$19.00 per hour.**
Discount prices on parts also.

We Carry
CABLES & INTERFACES
for Commodore, IBM, Apple, TRS-80 and MOST OTHERS



** Special Message*

In order to accomodate and protect computer stores across the country which have higher overhead costs and far less purchasing power than MidWest Micro, we have agreed not to publish bare printer prices. In return we are able to assure the astute shopper the ultimate value and savings on fully warranted Star Micronics products and service.

DEALER SERVICE #OH38019



CALL TOLL FREE FOR INFORMATION OR ORDER

(800) 423-8215

IN OHIO, CALL - (800) 321-7731
HOT LINE: 513-663-4992
(FOR TECHNICAL ASSISTANCE OR INFORMATION ON YOUR ORDER)

MONDAY - FRIDAY
9 AM - 6 PM (EST)
SATURDAY 10 AM - 4 PM
PRICES SUBJECT TO CHANGE,
AVAILABILITY AND TYPE ERRORS

MidWest Micro-Peripherals

135 S. Springfield St., Saint Paris, Ohio 43072

All equipment shipped factory fresh with manufacturers warranty.

HIGH TECHNOLOGY — NOT HIGH PRICES



EPSON PRINTER SALE

Plus IBM and IBM XT® Compatible Systems

SAVE WITH CONFIDENCE - CALL MIDWEST MICRO



NO TAX CHARGED TO RESIDENTS OUTSIDE OHIO
SAME DAY SHIPPING ON ALL ITEMS IN STOCK
TECHNICAL SUPPORT

PRICE GUARANTEE

We at Midwest Micro guarantee that we can save you up to 49% or more on your purchase of new fully warranted equipment and supplies. And we will still give you friendly, courteous service. Call today and Save With Confidence!

FAST RELIABLE SERVICE
Call Sue, Kathy, Robin, or Ray for your computer product needs.
ONE CALL SHOPPING TOLL FREE



NEW! Don't spend a fortune to own the world's most popular printer...

EPSON LX-80 YOUR PRICE **\$249** LIST \$349



The new Epson Spectrum LX-80 is perfect for the vast majority of your personal and professional printing needs, such as reports, term papers, recipe files or mailing lists.

It's easy to set up and operate. And, with Epson's convenient SelectType feature, you can choose from a wide range of types and graphics. With convenient Dual Mode operation, the LX-80 lets you zip through drafts at high speed, or produce finished copies with a high-quality, typewriter-style appearance. And it accepts a complete line of options for easy, future expansion.

Because the LX-80 is made by Epson—the standard of the industry—it's compatible with virtually every computer system made. It inherits a reputation for dependability and durability that's unsurpassed by any other brand. And it offers a full one year warranty—the best in the business.

The new Spectrum LX-80 offers a combination of performance and value at a price that's second to none.

Print Memos to spreadsheets with Epson quality with the...

EPSON RX-100
NOW ONLY \$399



LIST \$895

Offering a steady 100 CPS printing, the RX-100 gives you a fifteen inch wide carriage for spreadsheets and ledgers. With both friction paper feed and removable tractor feed, you can print on forms from four to fifteen inches wide taking care of all your printing needs.

NOW Find yourself having to give up print speed to get a good, crisp, near letter quality? No more with...



LIST \$1395

EPSON LQ-1500 **\$CALL & SAVE**

Now you can get speed and top print quality with the EPSON LQ-1500. At a lightning speed of 200 CPS, you can get those reports and memos done in a snap. No more waiting for your correspondence—the LQ-1500 offers a near letter quality mode at a brisk 67 CPS to get those letters done today.

Need those financial reports tomorrow? Providing you with a 15.5 inch carriage, the LQ-1500 is perfect to handle your spreadsheet needs.

Want to make sure those reports are understood? Why not try emphasizing your points with graphs and charts! The LQ-1500 can deliver charts and graphs beautifully!

Make your mark in business with style—the style of the LQ-1500.

FREE GIFT!

Buy any popular printer from Midwest at these special discount prices and we will include an attractive LCD Quartz COMPUTER CLOCK absolutely FREE!!

CALL TODAY!

Epson continues to set the pace in computer printer performance with...

ALL NEW

ONLY \$399 CALL **EPSON FX-85** LIST \$699



Quite simply the Epson FX-85 is the most intelligent way to print you can find. At a brisk 180 characters per second in draft mode and 32 characters per second typewriter style near letter quality mode, the FX-85 gives you professional versatility. A new 8K internal buffer stores up to 4 pages of data allowing you to print and use your computer at the same time.

Plus, for an added measure of creativity, Epson's exclusive SelectType feature gives you finger tip selection of numerous popular types at the touch of a few buttons. Its easy control panel selector means less time programming when changing types. The FX-85 is equipped with both pin feed and friction feed and connects to your computer by simply plugging in a cable. And with Epson's full year warranty you can be sure you're getting the most in quality, dependability and performance.

Get a hard working business printer designed to give you a powerful advantage in meeting the hectic, high-pressure demands of today's business world... get the FX-85!

A printer that's all business...

EPSON FX-185



NEW

ONLY

\$599 LIST \$999

Need those spreadsheets and ledgers printed yesterday? No more waiting with the FX-185 giving you a capacity of 136 column printing and a print speed of 160 CPS. And now you even get a typewriter-style, near-letter-quality mode.

With the same graphics features, 8K buffer, and paper handling capabilities as the Epson FX-85, the FX-185 will give you the 136 column printing at a modest cost. Handle your business reports as only a business printer should with the EPSON FX-185.

IBM PC AND XT SYSTEMS

Call for Best Price and Availability



COMPLETE MW XT BUSINESS SYSTEM

LIST \$3295

ONLY \$1399

Buy 2 at \$1329 each

- XT Compatible computer with 256K RAM
- 8 full length expansion slots
- 135 watt power supply with four cables
- IBM style keyboard with lighted Num + Caps lock
- Parallel Printer Port
- DOS 2.11
- Software Library
- New Base Data Management Software (Holds up to 32,000 records/file.)
- PC-Write Word Processing Software
- Electronic Spreadsheet Program for business management.
- Two 360K Floppy Disk Drives and Controller
- Monochrome Monitor & Graphics Card
- 6 outlet power management unit with surge protection and on/off switch
- Box of 10 DS/DD Diskettes and an attractive smoked plexiglass Diskette Box.

IBM XT IS REGISTERED TRADEMARK OF INTERNATIONAL BUSINESS MACHINES CORP.

IBM XT® COMPATIBLE



COMPLETE

IBM XT® COMPATIBLE MW XT HIGH CAPACITY BUSINESS MANAGEMENT SYSTEM WITH 10 Mb HARD DISK

LIST \$4295

ONLY \$1799 Buy 2 at \$1749

- XT Compatible computer with 256K RAM
- 8 full length expansion slots
- 135 watt power supply with four cables
- IBM style keyboard with lighted NUM & Caps lock
- Parallel Printer Port
- One 360K Floppy Disk Drives and Controller
- 10 Mb Hard Disk Drive
- Monochrome Monitor & Graphics Card
- 6 outlet power management unit with surge protection and on/off switch
- DOS 2.11
- Software Library
- NewBase Data Management Software (Holds up to 32,000 records/file.)
- PC-Write Word Processing Software
- Electronic Spreadsheet Program for business management.
- Box of 10 DS/DD Diskettes and an attractive smoked plexiglass Diskette Box.
- Add Even More Power!!
- Substitute 20 Mb for 10 Mb Hard Drive Just \$299.
- Add 384K RAM (for total of 640K) plus a clock/calendar added
- Parallel + Serial Port, Game Port attachment, RAM disk and print spooling software just \$199.

IBM XT® Compatible System Moneyback Guarantee

If you do not agree that your IBM XT® Compatible from Midwest Micro is the best business computer buy in the U.S. or if it fails to run any IBM software package "off the shelf", you may call Midwest Micro within 14 days for a full refund. (To qualify for refund, the system must be returned in like-new condition with all originally supplied materials and packaging.)



CALL TOLL FREE FOR INFORMATION OR ORDER

(800) 423-8215

IN OHIO, CALL - (800) 321-7731

HOT LINE: 513-663-4992

(FOR TECHNICAL ASSISTANCE OR INFORMATION ON YOUR ORDER)

MONDAY - FRIDAY

9 AM - 6 PM (EST)

SATURDAY 10 AM - 4 PM

PRICES SUBJECT TO CHANGE, AVAILABILITY AND TYPE ERRORS



MidWest Micro-Peripherals

135 S. Springfield St., Saint Paris, Ohio 43072



All equipment shipped factory fresh with manufacturers warranty

HIGH TECHNOLOGY — NOT HIGH PRICES

COMPUTER SHOPPER™

TABLE OF CONTENTS

Newest Computer Game Craze: NFL Challenge

- Franklin's New Ace 2000 Computer
- The Correspondent, Program For Mod 4
- Do Surge Protectors Protect?
- Robotics Column

ARTICLES

New Computer Game Craze — NFL Challenge From XOR	7
The New FRANKLIN ACE 2000 Series Of Computers	8
Do Surge Protectors Protect?	8
Editorial	15

COMMODORE

Inside Commodore	53
A Trip On The Entrepo "Quick Data Drive"	53
Super Bowl Sunday	85
Personalized ROMs Now Available	86

IBM-MS DOS

It's Easy — When You Have Ability!!!	55
AT/PC Compatibility Problems And Some Tricks	55
Turbo Gameworks First Borland "Games" Software, Includes Source Code	90
New 1 dir Version 3.5 Adds Expanded Menus, Macro Capability	93
Ashton-Tate Introduces Framework II	95
Lotus Lets Users "Boot" Software From Hard Disks	95
A Site License For User Groups A New Way To Generate Club Review	98

TANDY

Tandy's New High Speed DMP 2200 Dot Matrix Printer — Handles All Business Needs	57
Corresponding With CoCo	57
The Correspondent For The Model 4	58
Finding Public Domain Software For Your 80 — Mission Impossible?	58
Double Duty	58
Telepatch — A Telewriter	64
Enhancement	104
The Caretaker	108
SUPERLOG4	132
1986 Radio Shack Computer Catalog Features More Than 1,000 Items	192

APPLE

Ask The Guru	59
New Apple II Copy Program Does Away With User — Supplied Parameters	59
Blankenship BASIC	110
You Oughtta Be In Pictures Contest	114
Use Your Computer To Learn Music Sight-Reading	115

MACINTOSH

Macrovision Introduces MacViz	61
One Small Step For A Robot, One Giant Stumble For Robotkind	61
MacUniverse	61
RGS WRIGHT (Version 1.00) Word Processor Now Available For Macintosh Computers	62
Spectrum Holobyte Announces "Tellstar" For Macintosh	130
Typographer Adds Professional Document Design To Microsoft Line Of Productivity Software For The Macintosh	131

Microsoft Releases Full FORTRAN For The Apple Macintosh	163
---	-----

ATARI

Applying The Atari	63
Good News For Atari ST Owners	63
I Own An Atari 520ST Computer	64
Jackintosh Logo	64

SANYO

Just For Fun: Three Graphics Programs Exclusively For Sanyo	65
The Silver Box	65
Sanyo BASIC User's Handbook	144

TEXAS INSTRUMENTS

Randy's Ravings	71
Universal Mac Inker: Automatic Computer Printer Ribbon Re-Inker	71

CP/M

Building A Surplus Xerox 820-1 Computer System	73
Interactive Disassembler For Hitachi HD64180 Super Chip	74
Software Product Announcement	74
Spectravideo Announces Formation Of National Customer Service Program	74

TIMEX-SINCLAIR

Timex/Sinclair Survival Column	75
--------------------------------	----

ROBOTICS

Robots And People — An Overview	77
---------------------------------	----

MISCELLANEOUS

Frequency Doubling And Other Fun Things To Do With Digital Pulses	79
Norcom Electronics Announces New Printing Concept	79
Paradyne Announces New 1200 BPS Auto-Dial Modem	80
General Electric Introduces "Expert" Software	80
Silent Paging System	151
Travelling Software Introduces The Ultimate ROM For Portable Computers	154
Modem Protection	155
Quick And easy Programming Aids	155
PALET Programmable Array Logic Educational Tool	156
Copy Protection And Piracy	160

HEATH/ZENITH

BASIC Data Base Part 1	81
------------------------	----

OTHER

Showcase	212, 214 & 216
Coming Events	254
Bulletin Board	202, 203 & 204
Classified Index	217
Users Group	250, 251, 252, 253 & 254
Service Directory	236
Advertisers Index	273
Software Shopping List	206 & 207

THINGS TO COME

- Santa Computerizes Christmas
- In-Depth Review Of New Franklin 2000 Computer
- Apple Releases New Peripherals And Software For Apple II And Macintosh.

COMPUTER SHOPPER™

Computer Shopper is published monthly for \$18 per year by Patch Publishing Co., Inc., 407 S. Washington Ave., Titusville, FL 32796. Application to mail at Second-Class Postage Rates is pending at Titusville, FL and additional mailing offices. POSTMASTER: Send address changes to COMPUTER SHOPPER, P.O. Box 1419, Titusville, FL 32781.

Subscription \$18 Per Year (USA Only)

Patch Publishing Co., Inc.

407 S. Washington Ave., P.O. Box F • Titusville, FL 32781

(305) 269-3211

West Coast Sales Office — 415-665-3377

Source ID No.: TCS575 • Compuserve No. 70275,1023

Publisher Glenn E. Patch
Assistant Publisher Linda Rew
General Manager Robert Keymer
Editor-in-Chief Stan Veit
Contributors:

Lon Andrews	Andrew Fried
Jeff Brenner	Randy Holcomb
Richard Fujita	L.J. Kuttan
Philip Chien	Don Lancaster
Ted Drude	Barbara E. & John F. McMullen
Mark Fendrick	Cheryl Peterson
Rich Fields	Les Solomon

Editorial Assistant Annda Lahee
Production Manager Carolyn D. Sizemore
Compositors Mary Faenza
 Lori Conway

Composition Assistant Patti Schwender
Art Director Charlotte Barbour
Layout Artist Debi Hartling
Graphic Artist Wendy LaPinta
Advertising Coordinator Bill Hutto
Advertising Assistant Sam Batts
Advertising Director Nancy Altman
Advertising Manager Ken Wood
Advertising Sales Gary Liput
 Linda Ann Fisher
 Larry Morrisette
 Bob Harper
 Eileen Hicks
 Don Welk

Controller Nereida Hernandez
Accounting (Payable) Eileen McCullough
Accounting (Receivable) Rosemary White
Circulation Director Pat Irelan
Customer Service (Circulation)
 Copyright 1985

NOTICE TO ADVERTISERS

All advertising is subject to Publisher's approval and acceptance without recourse. The advertising herein that is typeset and/or designed by Computer Shopper, is the property of Computer Shopper and not that of the advertiser. The advertiser has purchased the right of reproduction in Computer Shopper only and does not have the right to reproduce the ad in any other place of publication. We are not responsible for mistakes, misprints, or typographical errors and will not issue credits of any kind for such errors. Advertisers and their agencies assume responsibility for the condition of the contents of advertising printed, and agree to indemnify the Publisher of Computer Shopper for any and all claims and expenses arising therefrom. Computer Shopper standards suggest to the advertiser that statements concerning shipping and handling charges, warranties and money/or no money back guaranties should be stated in all forms of advertising within Computer Shopper. The opinions expressed in the articles and ads are those of the writer and not necessarily those of Computer Shopper.

DISPLAY INFORMATION

For information on placing display advertisements and current media kit, please contact: Computer Shopper, 407 South Washington Avenue, P.O. Box F, Titusville, FL 32781. (305) 269-3211.

PUBLISHER'S POSITION ON HONESTY

We guarantee that all ads meeting our ad policies will be published. There is no "skimming" bargains off the top or letting anyone preview the ads of the next issue.

We have expended much time, effort and money with the ultimate goal of providing

subscribers with a nationwide ad service for the lowest possible cost. In reciprocation, we would expect you to conduct your transactions fairly, honestly and in the same manner as you would expect others to deal with you.

There are a few people who appear unable to go through life

without having a hassle over every deal they encounter. If you are this type of person, we prefer not to handle your ad business.

We will not knowingly publish a classified or commercial ad of which we have information that the individual or firm is not reputable and fair. If you answer

an ad within Computer Shopper and encounter dishonest treatment, please let us know. If there are several legitimate complaints, we will refuse future advertising and if a subscriber, cancel their subscription.

GLENN PATCH
Publisher

SAY GOODBYE TO THE 4 FIGURE PRICE TAG!



Until now if you needed a computer for word processing, spreadsheets, databases or business accounting you had to face one fact of life: a 4 figure price tag! Oh, sure you could save some money on a "home" computer with it's limited selection of business software. You might even look into an older 8-bit unit but today's business world is fueled by MS-DOS.

- **Enter The Fox.** Now \$995 brings you a complete 8088 based MS-DOS system with a 12" green monitor capable of running many of the most popular business oriented programs like dBASE II and Multiplan.
- **More Storage.** The Fox comes with 256K of RAM which can be expanded to 768K. In addition you get the power of dual 800K drives. Unlike other systems costing 2 or 3 times as much, The Fox lets you read and write to 160K, 320K and 360K IBM-PC disk formats.
- **More Software.** Free with each Fox computer is the best software bundle in the business. You'll get WordStar 3.3, CalcStar, EasyWriter, Spell, Mail Track, PC File III, FILEBASE, MS-DOS 2.11, Hagen-DOS, DOS Tutor, games, graphics, utilities and BASIC. Although it's not PC-DOS compatible The Fox will run hundreds of the same programs as the IBM-PC Including Turbo Pascal, Fortran 77 and The Word Plus. For a small additional cost you can even run Lotus 1,2,3 and Flight Simulator.

- **More Warranty.** The Fox is delivered to you with a one year limited warranty on all parts and labor. Our promise to you is simply that if something should go wrong we will repair your Fox with the least amount of down time possible. However, due to our extensive pretesting we feel confident you'll never have to take us up on our offer.

You can receive a free booklet on the \$995 Fox (and her sister systems) by calling our machine at 1-800-FOR-A-FOX and leaving your name and address at the tone.

Well, what are you waiting for? After all, nobody likes long goodbyes.

The Fox \$995

also

"Lotus" Board....\$159 NEC 1460 RGB....\$279



Scottsdale Systems

A Division of Albrizzi Enterprises, Inc.

617 N. Scottsdale Rd. #B, Scottsdale Az 85257



(602) 941-5856



The Fox is sold exclusively by Scottsdale Systems, 617 N. Scottsdale Rd. #B, Scottsdale AZ 85257. Trademarks: The Fox and Hagen-DOS, Scottsdale Systems; WordStar and CalcStar, Micropro International; MS-DOS, Flight Simulator and Multiplan, Microsoft Corp.; FILEBASE, EDWP Software Inc.; dBASE II, Ashton-Tate; The Word Plus, Oasis; Lotus 1,2,3, Lotus Corp.; IBM-PC AND PC-DOS, International Business Machines Corp. Ordering: Telemarketing Only. All prices are for cash, F.O.B. Scottsdale, AZ. Prices subject to change, product subject to limited supply. We accept purchase orders from Fortune 1000 companies and major universities with good credit - please add 2%. For MasterCard and Visa orders please add 3%. AZ residents please add 6%. Returned merchandise is subject to a 20% restocking fee. Personal or company checks take up to 3 weeks to clear. No COD's or APO's.

MEGABYTES WITHOUT MEGABUCKS

Save on name-brand, plug-n-play mass storage sub-systems for IBM PC™ and compatibles.

The best package at the best price...that's the **WESTEK ADVANTAGE**. Everything we sell is strictly first class. Our thoroughly engineered, ready-to-run sub-systems are built around brand name peripherals you know. These include 10MB to 140MB hard disk drives from Seagate, Rodime, Mitsubishi, Tulin, Miniscribe, Bull and Maxtor. Also 10MB to 60MB streamer tape drives from Irwin, Cipher, Archive and Wangtek. Controllers are from Xebec, Western Digital, DTC and Adaptec.

For external use these are packaged in our specially designed WESTEK steel system enclosures with injection molded front bezel, complete with regulated Lanier power supply, cooling fan, data connector slots, On/Off power switch, AC power socket, power fuse and power cable. All components are UL-approved.

Built Right, Backed Right.

In addition to manufacturers' warranties, WESTEK includes its own 15 day money-back guarantee. What's there to lose but inflated prices?

For the Mass Storage flexibility you need for your IBM PC, PC-XT, PC-AT or compatible, you can have a choice of system enclosures. Select from full-height, half-height and side-by-side designs. And if you'd rather handle the integration yourself, we'll be glad to sell you the components. Again, everything is name-brand merchandise at very attractive pricing.

* All brand names are registered trademarks of their respective companies.

Here's How To Order.

Pick your package from those shown here. And if you don't see exactly what you want, just call and ask. (We have about 50 different configurations)

**FOR ORDERS ONLY OUTSIDE CALIFORNIA CALL
TOLL FREE 1-800-854-0561 and ask for ext. 851**

**FOR ORDERS INSIDE CALIFORNIA AND
CUSTOMER SUPPORT CALL 714-538-7722**

OUR TELEX #: 350638 OR MCI MAIL BOX #: 276-5035

**We are so sure you'll like what you get, we offer a
15 day money-back guarantee.**



Westek Computer Group
A DIVISION OF WESTEK ENTERPRISES, INC.
4418 E. Chapman Ave., Suite 315
Orange, California 92669

Get the WESTEK Advantage

Terms

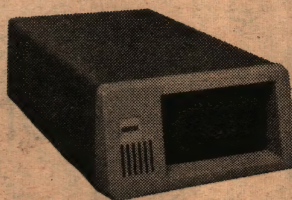
For fast delivery send cashier's checks, certified checks, money orders, wire-transfer. Personal & company checks allow 3 weeks delay for shipping. C.O.D. shipments require 25% deposit of total order. FREE shipping (UPS ground & fully insured) on orders delivered in continental USA. ADD 6% SALES TAX if California resident.

All returns must have a return authorization number. Call 714/538-7722 first to obtain one before returning goods for replacement. Defective merchandise replaced with same item only. A 15% restocking charge on unclaimed orders. We do not guarantee compatibility. Prices, Terms & Product availability are subject to change without prior notice. Not responsible for typographical errors.

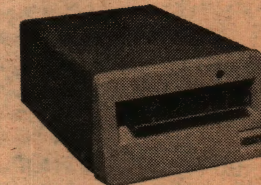
SIX POPULAR WESTEK PACKAGES—ASK ABOUT OTHERS!



SIDE BY SIDE with
power control center
• for IBM PC, PC-XT
• 10MB tape
• 20MB disk
\$1795*



**FULL HEIGHT
HARD DISK DRIVE**
• for IBM PC, PC-XT,
• 140MB
\$4595*



**FULL HEIGHT
STREAMER TAPE**
• for IBM PC, PC-XT,
PC-AT
• 60MB
\$1095*



**1/2 HEIGHT DISK &
TAPE DRIVES**
• for IBM PC, PC-XT,
PC-AT
• 60MB tape
• 30MB disk
\$2295*



**1/2 HEIGHT
HARD DISK DRIVE**
• for IBM PC, PC-XT
• 30MB
\$1275*



**FULL HEIGHT
FLOPPY TAPE DRIVE**
• for IBM PC, PC-XT
requires a hard disk
• 25MB
\$895*

**Above systems come with disk and/or tape controller, cables, utility software where applicable.*

New Computer Game Craze -- NFL Challenge from XOR

by Stan Veit

Computer games have always been one of the most interesting applications of personal computers and they have produced many advances in computer software. Games like Breakout, Star Trek, Space Invaders developed computer graphics beyond the levels they would have reached without the incentive of the game popularity. The adventure games spurred the development of data bases and file management programs and now games such as NFL Challenge can be considered as examples of Expert Systems.

NFL Challenge is one of the hottest games on the market today. Written by XOR Corporation with the cooperation and sponsorship of the National Football League, this game captures the philosophy and finesse of professional football as played in the NFL. The program which took over 10 man-years to develop details the game from the initial coin-toss to the final two minute warning.

The documentation consists of well written User's Guide, Offensive and Defensive Playbooks and The NFL Illustrated Playbook. The User's Guide provides an easy to understand tutorial for the computer novice, while the NFL Illustrated Playbook teaches the user offensive and defensive strategy. A complete football novice can learn enough about the game from these books to run one of the teams who play the game-within-the-game.

What You Need To Play NFL Challenge

NFL Challenge runs on

most IBM/PC/AT/XT compatibles and clones. The minimum memory requirements are 256K and at least one floppy disk drive is required. The game will run on either a monochrome monitor or an RGB color monitor. A graphics card is required if the complete effect of the game is to be enjoyed. NFL Challenge uses color coding in various ways to aid the user, but you can play the game without it. One important feature you won't see without a graphics board is the animated depiction of the plays. The simulation itself will run (that is the yards gained or lost) but only the results will be reported on the screen and you will lose the most important effect of the game. If you have a graphics adapter with a monochrome monitor (such as some COMPAQ computers or IBM Portable) you will see the simulations in shades of monochrome.

XOR Corporation has provided two diskettes for NFL Challenge, one is the program

disk and the other is the team disk. Neither is copy protected and XOR even provides a set of blank "backup" disks so you can protect your master disks and use backups. Their confidence in the using public is to be commended. In addition, the system documentation is as important as the disks. Very few people (even those in the NFL) could run this game without the offensive and defensive play books.

When you first start the game, you go through an installation process and the program will determine your computer configuration. Once you have answered the configuration questions, NFL Challenge will record your answers in a special file. Every time you run the game the system will read this file so you do not have to re-enter the information. You can change the file if necessary.

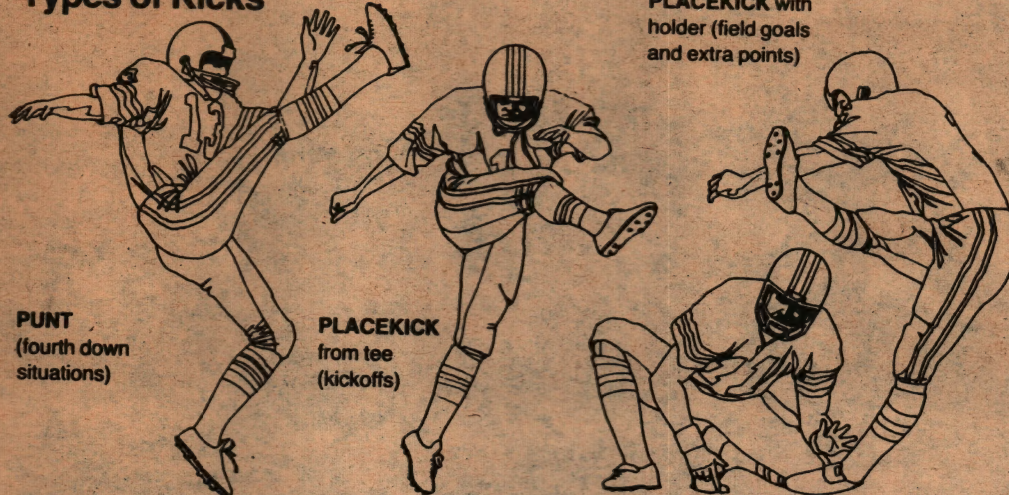
Starting To Play

With the program disk in one drive and the team disk in another, you enter "NFL" at the prompt. You can install NFL Challenge on a hard disk, but the program needs to know in which drive the team disk is located. To this end there is a configuration routine that tells the program on what drives the proper disks are located. Once you have gone through this routine, your configuration will be recorded in a special file for future use. You can change the file if your drive set-up changes.

Once the game is started, the players are asked which teams are to play. All the teams in the NFL are available and are shown on the screen, organized by conference and division. You first select the "Home" team and then the "visiting" team. You can select teams from any conference or division you choose.

Next, you select the coach and a keypad for each team.

Types of Kicks

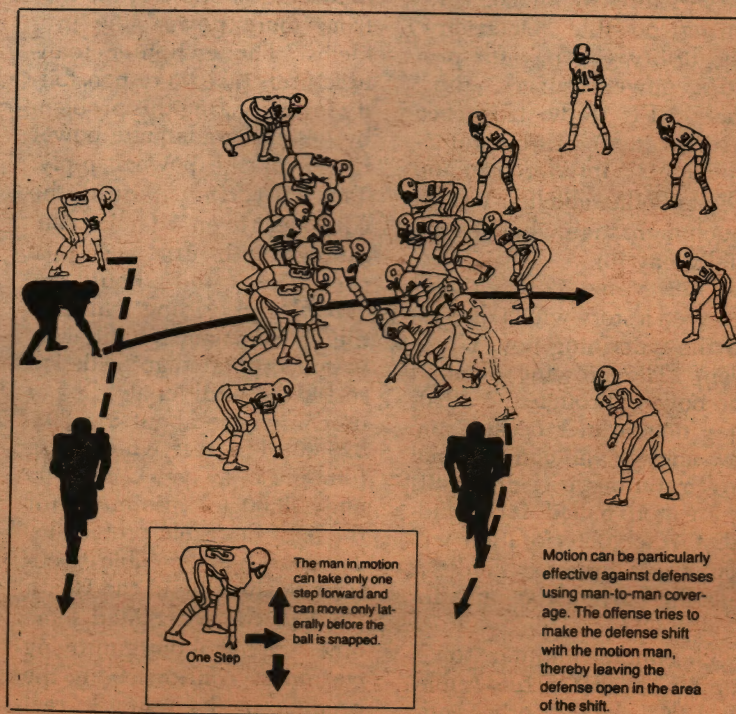
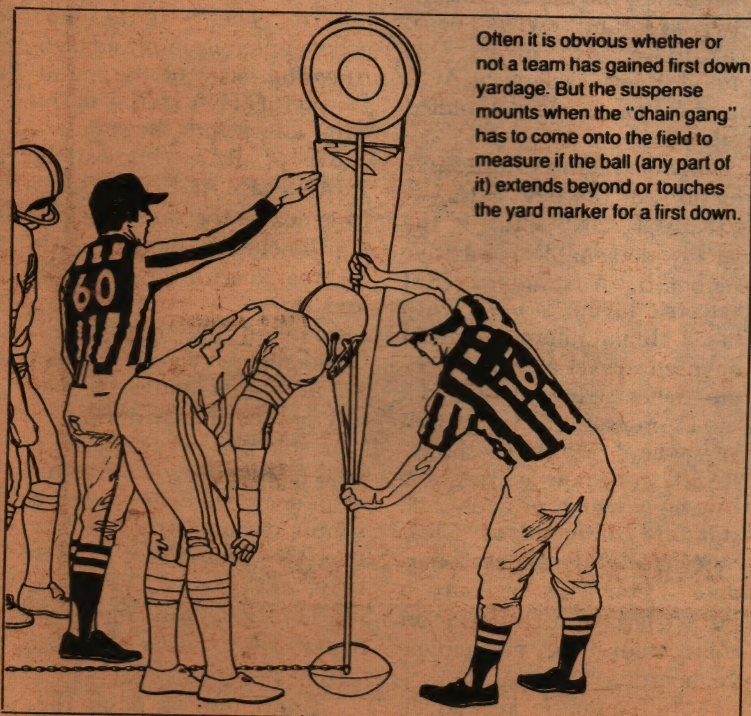


the screen. Once the data is loaded, you will see the playing field with goal posts, yardage markers and game information including game time, the quarter, the score, time outs remaining, the downs, line of scrimmage and yards to go. Each coach sees a Coaching Menu to select plays and players. You get to see your opponent's menu as well as your own. You can select the player from the roster of your team. The players have various skill ratings in running, receiving, blocking, passing and kicking. You as coach make your selections for starting line-up and all during the game. Of course certain positions require players with special skills, for example quarterbacks or defensive backs, line backs, place kickers.

Once you learn how to use your players and to pick the plays for both defensive and offensive you can enjoy the playing of professional football and be the coach you always wanted to be. Things like penalties, injuries and interceptions are all part of the game and you must learn to really coach and make the decisions needed to win the game.

The graphics are outstanding, you see the field and the position of teams, then the actual play with players represented by "Os" and "Xs" moving through the execution of the play. Then once the play is over, there is an instant replay to enable you to analyze what happened. When a touchdown is made you see an elaborate set

Continued on page 10



The New FRANKLIN ACE 2000 Series Of Computers

Editor's Note:

This is an introduction to the new ACE 2000 Series. We have received a system for review and will feature an in-depth review and analysis in the next issue.

Franklin Computer Corporation has introduced the new FRANKLIN ACE 2000 series, powerful and feature-packed computers in their price class...and they are Apple-compatible.

The ACE 2000 series is available in three models: the 2200, configured with two built-in disk drives; the 2100, with one built-in drive; and the 2000, with no drives. (Franklin offers these choices for the convenience of those users who may already have disk drives.)

Manufacturer's suggested retail prices for the three FRANKLIN ACE models are: \$699 for the ACE 2000; \$849 for ACE 2100; and \$999 for the ACE 2200.

The new FRANKLIN ACE 2000 series runs most of the newest and most popular software titles now available for the Apple II+, IIe, and IIC. The list includes such popular software as Apple Works, SuperCalc 3a, the PFS series, and Flight Simulator II. Morton E.



David, Franklin's chairman and chief executive officer, noted that the new ACE 2000 series was Franklin's "first new product introduction in two years, and comes after a period of corporate turmoil."

"Therefore," David added, "the computer was designed to re-establish Franklin in its traditional markets, re-emphasizing the values which built a loyal dealer and user base. The ACE 2000 series is feature-

packed, competitively priced and built for ruggedness and reliability."

As a standard feature, all models come equipped with 128K of random access memory; a built-in parallel printer card; switchable 40 or 80-column mode of display; a 90-key detachable capacitive keyboard with numeric keypad; 12 fully programmable function keys; and a game port with both 9 and 16-pin connectors.

A 22-mhz bandwidth Franklin monitor, capable of 1000 lines of resolution, is also now available with a suggested retail price of \$139. In addition to its excellent display characteristics, the monitor has its own tilt and swivel base. (Franklin also offers this monitor with each of the ACE models, at a special bundled price.)

One of the most impressive features of the new FRANKLIN ACE 2000 series is the 90-key detachable capacitive keyboard. A standard IBM Selectric layout is used, with black alphanumeric keys that have full travel and no "wobble" when struck. Aside from the 12 programmable function keys there are nine special BASIC language editing key functions which provide such standard commands as "Clear Screen; HOME; Delete Character," etc. This keyboard is built to last 8 to 10 times longer than traditional mechanical keyboards.

A full numeric keypad on

the main keyboard provides easy entry of numerical data as well as the normal functions of cursor control. The up-down and left-right arrows are arranged in a "compass rose" formation that has been found to be easiest for users. In addition, LED "on/off" lights have been built into the "caps-lock" and num-lock" keys so the user can readily tell when those functions are active.

The 12 programmable function keys are preset with the 12 most commonly used FRANKLIN DOS commands whenever DOS is loaded into the computer. For example:

--F1 (function key 1) automatically provides a catalog of the disk in drive one.
--F2 gives the catalog for the disk in drive two.
--F3 switches into the 80-column display mode.

The function keys can be easily reset by the user for any other DOS function or BASIC command.

Five LEDs (Light Emitting Diodes) are built into the unit to indicate power-on, power-off; when the computer is performing a diagnostic self-test; disk status; whether double-high resolution mode is active; and the degree of CPU (Central Processing Unit) activity. When the CPU light is dim or flickering slightly, it indicates that the computer is processing but well within its limits; when the light is strong and steady, it means the central processor is working at maximum.

The central processor used in the FRANKLIN ACE 2000 series is the 65SC02, which is functionally identical to the 65C02 used in the Apple IIe and IIC. (The "S" in the chip's code number is simply an identification letter of the manufacturer, GTE.) The use of this chip, along with the standard 128K of RAM allows the FRANKLIN ACE 2000 series to generate the same "double high-resolution" mode that can be created with the Apple IIe and IIC.

Franklin has instituted a "no-nonsense" warranty policy for all new products. Should any problems arise during the warranty period because of defects in materials or workmanship, dealers are authorized to simply exchange the machine over-the-counter for a new one.

"The Franklin operating system FRANKLIN DOS 2, is

Do Surge Protectors Protect?

by Lawrence Choy-Kee

Having spent some considerable cash to join the age of microcomputing, the new user may be dismayed to find his machine may be threatened by the very force that makes computing possible, electricity. The utility you pay for provides power, surges, dips, noise, RFI, (radio frequency interference) EMI (electromagnetic interference) and a host of other glitches. You get much more than what you actually pay for.

The New York Times featured a story which discussed the worsening power problem. The growing demand for power through the 1990s may not be met because too few nuclear and conventional power stations are being built, or are moth balled. It concluded, further deterioration will occur in present facilities meeting current demands for new power.

The microcomputer power supplies used for the Apple, IBM PC, clone or other com-

puter are overwhelmed by the vast array of multifunction boards which spring up daily to claim its last watt. The solution is to buy a bigger supply or you can't add boards. The stock power supplies are often inadequate to protect the user from main power line problems. The computer manufacturers take no responsibility for correcting this problem by designing adequate power filters for the power supply. This filtering should be equivalent to an A.C. line conditioner with surge and spike protection, and should be capable of riding through minor brownouts. If filtering was incorporated at the design stage, the additional cost per user might be about \$15.00 - \$25.00. The user who buys a filter must pay between \$15.00 and \$50.00 at a minimum, for the least desirable protection. There are a few notable exceptions to this rule in the Heath H8/H19 computers and some others. What about improving customers confidence in the product by including a real

surge/spike suppressor with every new computer sale, until you redesign your power supplies as suggested above? Unfortunately most computer manufacturers provide the lowest cost supplies.

If a new power supply is required a fully protected replacement should be purchased. L-COM Inc. manufactures a line of power supplies with built-in EMI, (RFI) line filters and overvoltage and overcurrent protection. The L-COM supplies do not have surge/spike protectors built-in. Having such a power supply does not mean you are totally safe. It is still reasonable to have an additional line of defense between your system and the wall outlet.

The economics are quite simple its cheaper to protect what you have from electrical problems or recovery problems than to buy a new one. The physical damage to a system caused by electrical disturbances often go unnoticed and

Continued on page 10

Continued on page 15

ATTENTION IBM® USERS!!!

SYSTEM UNITS

THE TURBO PC

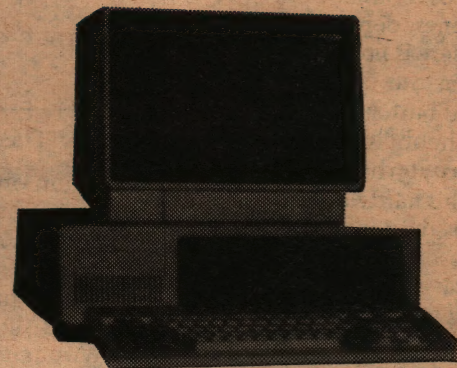
XT System/256k RAM/Two 360k disk drives	1195.00
XT System/256k RAM/One 360k drive/10 meg hard disk	1895.00
XT System/256k RAM/Two 360k drives/10 meg hard disk	2095.00
XT System/256k RAM/One 360k drive/20 meg hard disk	2195.00
XT System/256k RAM/Two 360k drives/20 meg hard disk	2395.00

MONITOR ADAPTER OPTIONS

Monochrome Monitor Card	149.00
Color Monitor Card	199.00
Hercules Compatible Graphics Card	249.00

EXPANSION BOARDS

Parallel Printer Card	\$ 59.00
Serial RS-232 Card	\$ 69.00
Multifunction Card	\$199.00
512K Memory Bd w/Ok	\$149.00
64K Bank of Memory	\$ 19.00



Monitor Not Included

THE TURBO PC

- *LOOKS LIKE IBM®
- *PERFORMS LIKE IBM®
- *8088 MHz CPU
- *8087 MATH COPROCESSOR (opt)
- *256k RAM EXPANDABLE TO 640K (opt)

CALL US FOR CURRENT PRICING

We also carry Zenith and Sanyo Computers

MONITORS

ZENITH		
ZVM 122	12" Hi Res Amber	\$99
ZVM 123	12" Hi Res Green	\$89
ZVM 124	12" Hi Res Amber (IBM)	\$149
ZVM 130	13" Composite	\$249
ZVM 133	13" Hi Res RGB	\$389
ZVM 135	13" Hi Res RGB/Composite	\$449
ZVM 136	13" Hi Res RGB	\$649

AMDEK		
300G	12" Hi Res Green	\$129
300A	12" Hi Res Amber	\$149
310A	12" Hi Res Amber (IBM)	\$169
Color 300	12" Composite	\$269
Color 500	RGB/Composite	\$389
Color 600	Hi Res RGB (IBM)	\$449
Color 700	Super Hi Res RGB	\$539

TAXAN		
115	12" Hi Res Green	\$119
116	12" Hi Res Amber	\$129
210	12" RGB/Composite	\$269
220	14" Composite	\$269
410	12" Hi Res RGB	\$349
420	12" Hi Res RGB	\$499
440	12" Super Hi Res RGB	\$589

MODEMS

ANCHOR AUTOMATION, INC.	
Volks 12	
New 300/1200 baud	\$199
Volksmodem 300 baud	\$59
Signalman Mark X	\$129
Signalman Mark XII 300/1200	\$259
Volksmodem Cables	\$10

PRINTERS

COMREX		
Comriter II	13 cps letter quality	\$359
Comriter III	23 cps letter quality	\$699
Comriter IV	36 cps letter quality	\$799
Comriter 420	420 cps, near letter quality	Call

OKIDATA		
Okimate 20	New, Color, NLQ	\$229
182	New, 120 cps	\$249
192	160 cps, 8K buffer	\$399
193	160 cps, wide carriage	\$549
Pacemark 2410	350 cps, NLQ	\$1895

Panasonic.		
KXP-1090	96 cps draft	\$199
KXP-1091	120 cps, near letter quality	\$289
KXP-1092	180 cps, near letter quality	\$449
KXP-1093	160 cps, near letter quality	\$629
KXP-3151	22 cps letter quality	\$499

SILVER-REED		
EXP-400	13 cps letter quality	\$259
EXP-500	14 cps letter quality	\$329
EXP-550	19 cps letter quality	\$429
EXP-770	31 cps letter quality	\$799

Star		
SG-10	120 cps, near letter quality	\$249
SG-10C	120cps, near letter quality	\$269
SG-15	120 cps, near letter quality	\$389
SD-10	160 cps, near letter quality	\$349
SD-15	160 cps, near letter quality	\$489
SR-10	200 cps, near letter quality	\$499
SR-15	200 cps, near letter quality	\$649
Powertype	18 cps letter quality	\$339

DISK DRIVES

TEAC.

55B	1/2 ht. DS/DD	\$119
55F	1/2 ht. DS/QD	\$149

Tandon

100-2	DS/DD 360K	\$139.00
-------	------------	----------

CONTROL DATA

9409	DS/DD	\$129
9428	DS/DD 1/2 ht.	\$119
9429	DS/QD 1 meg, 1/2 ht.	\$129

BOARDS

512K Memory Bd w/OK	\$89
384K Multifunction w/OK	\$149
Color Graphics Card	\$149
Hercules Compatible Graphics Card	\$179
Monochrome Card	\$119
Parallel Printer Card	\$49
Serial RS-232 Card	\$59
Floppy Disk Controller	\$89
130 Watt Power Supply	\$119

SOFTWARE

ASHTON TATE	d Base II
BORLAND INTERNATIONAL	Turbo Pascal
HARVARD SOFTWARE	Project Manager
HAYES	Smartcom II
MICROTRON	DS DOS Plus
MICRO PRO INTERNATIONAL	Wordstar
MICRO RIM	R: Base 4000
MICRO SOFT	Word
OLYMPIC	Accounting Software
PEACHTREE	Back to Basics Accounting
SOFTWARE PUBLISHING	pls: File
STAR SOFTWARE SYSTEMS	Accounting Partner
US DIGITAL	Copylink

AND MANY MORE INCLUDING
SOFTWARE FOR SANYO AND
OTHER IBM COMPATIBLES.

CALL FOR CURRENT PRICES.

\$79.00

JAGUAR

**HIGH RESOLUTION
12 INCH AMBER
DISPLAY MONITOR**

- Anti-reflective CRT, high resolution data display.
- Computer compatible 80 character x 24 line display format.
- Attractive, computer matched styling.
- Convenient, all controls are design easily operate for user.
- Lighted Rocker power indicator.



CORPORATE ACCOUNTS WELCOME

*Prices and availability subject to change without notice. All returned items must have a return authorization number (RMA) and are subject to a 15% restocking fee.

IBM is a registered trademark of International Business Machines

THE
**COMPUTER
WAREHOUSE**

1407 DOWNTOWN BLVD., RALEIGH, N.C. 27603

**ORDER TOLL FREE
800-334-8261**

For information and in N.C. 919-832-9304

Computer Power Continued from page 8

can cause a progressive degradation of components in the computer over time. Several components may fail over a period of time because of an initial event, causing havoc with lost data at critical times.

The users fall broadly into two areas (1) hardware/data sensitive and (2) hardware sensitive data recoverable. The first user's business depends on the system. There is no margin for error when the system is your bread and butter. The second may be hobbyist or non professional user who would like to protect his hardware but can recover his data if trouble arises. The reason for all those backups you have been dutifully performing is to create a separate line of defense for your precious data.

A study done by two IBM scientists (1) showed a typical

computer is subjected to significant power line disturbances 128.3 times each month, (1540 per year). The data was collected from 49 different locations. The following figure shows their findings.

INCIDENCE RATE OF HARMFUL POWER LINE DISTURBANCES		
1. VOLTAGE OUTAGES	0.6/MONTH	<--0.5%-->
2. UNDERVOLTAGES	14.4/MONTH	<--11.0%-->
3. VOLTAGE SURGES	50.7/MONTH	<--39.5%-->
4. VOLTAGE SPIKES	62.6/MONTH	<--49.0%-->
TOTAL 128.3/MONTH 100%		

Evaluating The Risk

The minimum most users should do to safeguard their computer, even if they have initially decided not to buy any additional power protection, would be to check their systems electrical environment.

1. Have you had 3 or more electrical disturbances in your

about:

The time clock at the end of half-time and at the end of the game was confusing. When it seemed that there was enough time remaining to kick a field goal, the time would run-out! In the graphic examples the runner would be tackled by an invisible defensive player, while this only occurred in about one out of fifty plays, it was annoying.

NFL CHALLENGE is from XOR Corporation for IBM PC and compatibles. 5421 Opportunity Court Minnetonka, MN 55343, (612)938-0005. \$99.95 for the whole package. While this may seem high for a game, in our opinion it is worth every penny.

area within 6 months which affected your computer location?

2. Do you presently have any electrical filtering device to protect your computer system?

3. Has the electrical line supplying your computer been properly grounded and separated from other heavy load electrical appliances, refrigerator, fan, air conditioner, washing machine or other electrical device?

4. Do you use your system with a hard disk and perform overnight unattended processing or backup runs?

5. Have you noticed wavering of the characters on your monitor or unusual characters suddenly appearing?

6. Have you noticed any intermittent operation of the disk drives, monitor or keyboard?

Electrical Environment

A good place to start would be to check that all wall outlets are properly grounded. The ground provides a path for current to flow away harmlessly when a short circuit occurs. The ground acts like a lightning rod by discharging over-

voltages, and sending them to ground preventing fire or electrocution. Many older homes have no grounded outlets at all, or have ground neutral and power incorrectly connected. All computer power supplies have a ground protection terminal which can only work correctly if your socket is grounded. A ground testing plug can quickly determine if your outlets are wired correctly. This is a good item for a computer users group to share, making it possible for everyone to test their home or office system work area. The Kalglo model DPC+ surge suppressors have a built-in wiring integrity checker. Fordam Electronics sells Snapit a ground tester, this is mentioned in the reference section of this article.

How Much Protection?

Everyone should have the minimum of a spike/surge/RFI/EMI filter. The chart at the end of this article outlines the manufacturers and their products and specifications. Many of these manufacturers have a full line of protectors. We list the lowest-cost model

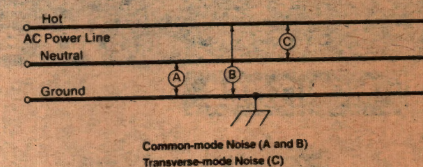
or indicate the range of prices in the group. The protectors vary in number of outlets they provide and the types of noise they filter. The Surge and Spike Protector table is a partial list and comparison of those manufacturers products.

Surge/Spike Protector Hardware

As the name suggests a spike is a short (less than 500 uS) event which appears as a sharp peak of high voltage and high current. A spike of 15,000 amps occurring in 250 uS does not give your 15 amp house fuse any time to blow out, it is incapable of sensing events this fast and cannot protect against them. A surge is an event longer than 500 uS. Spikes and surges can be generated by the utility switching power, a large home or office appliance (conducted interference) on the same circuit, or by (spherics) lightning and other natural phenomena. These surges and spikes also change the frequency of the current and generate a magnetic field near power lines causing (RFI) and (EMI) emission which travels down

Decaying oscillatory transients and voltage spikes are noises on the power line. Both types of disturbances may occur as either transverse-mode noise or common-mode noise, depending on the source of the noise and the transmission method used (for example, wye or delta).

- Transverse-mode noise occurs between the hot and neutral current-carrying conductors.
- Common-mode noise occurs between the common (ground wire) and either the hot or neutral current-carrying conductors.



Common-mode noise creates serious problems for computer equipment which uses common as a reference for its logic circuitry. This includes most minicomputer and microcomputer applications as well as smaller central processing units. Internal dc power supplies, although effective at removing lower frequency components of transverse-mode noise, provide no attenuation of common-mode noise. Clearly, protection from high-frequency components of transverse-mode noise and all frequency components of common-mode noise is needed.

SUBSCRIBER INFORMATION

Subscription orders and other subscription related matters should be sent to:

COMPUTER SHOPPER
Circulation Department
P.O. Box 1419
Titusville, FL 32781

Subscription rates:

USA	Canada	Foreign
<input type="checkbox"/> 1 year, \$18.00	<input type="checkbox"/> 1 year, \$45.00	<input type="checkbox"/> 1 year, \$100.00 (Air)
<input type="checkbox"/> (3rd Class)	<input type="checkbox"/> (1st Class)	<input type="checkbox"/> 1 year, \$20.00 (Surface)

Name _____

Address _____

City _____ ST _____ Zip _____

Charge to or Signature _____

Account # _____ Exp. Date _____

All subscriptions payable in U.S. currency. Please allow 6-8 weeks for delivery of first issue or change of address. H011

Change of Address:

OLD INFORMATION:

NEW INFORMATION:

Account # _____
(first line of address label)

Name _____

Name _____

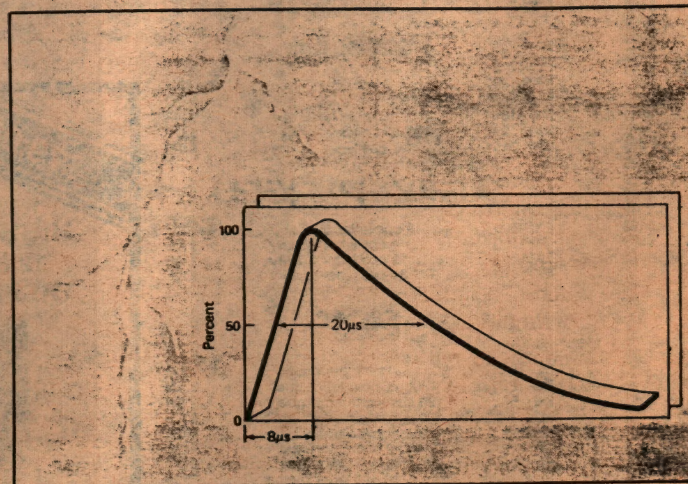
Address _____

Address _____

City _____ St _____ Zip _____ City _____ St _____ Zip _____

H011

Lightning Bolts



A typical lightning strike is characterized by more than one stroke per flash with peak currents of 20,000 amps or higher. The lightning bolt travels a crooked path to the ground. The path is created by the feeler current as it ionizes its way through the atmosphere, thereby producing the classic zig-zag pattern. Lightning-induced power-line spikes of up to 6000 volts have been recorded with rise times as short as 500 nanoseconds. In an effort to standardize a "typical" stroke, the

IEEE has proposed the above wave-shape. Based on both RFI (Radio-Frequency Interference) and EMI (ElectroMagnetic Interference) measurements, they developed the so-called 8/20 μs-pulse theory. This representative pulse has an 8-μs linear rise time to its crest, graduating to an exponential decline to zero. Pulse width, at the 50% points, is defined as 20 microseconds. The performance of all surge-protecting devices, including MOVs, is gauged according to this standard.

the line to you.

To combat these nasties science has developed the metal oxide varistor (MOV) and Zener silicon diodes. When voltage is lower than the threshold triggering voltage of the MOV it act as an open nonconducting circuit. If the applied voltage exceeds the rated threshold voltage of the MOV it clamps the overvoltage to safe levels. See Figures 1 and 2. The Zener does the same job but faster, its ability to clamp large currents and voltages is not as great as the MOV.

The (RFI) and (EMI) noise components are removed with a series of inductors (coils) and capacitors. These filters can be cascaded to give better filtering of lower frequency noise. These devices are the heart of most spike and surge protectors. The number of devices and the way they are connected makes the real difference in the quality of the unit.

Problems and Cautions

The most important ques-

Continued on page 14



COMPUTER ACCESSORIES



SERIAL SELECTOR SWITCH RFI/EMI FILTERING BUILT IN



\$54.88

The A-B serial selector switch gives you the flexibility you need and want. It allows you to pick and choose, use one computer and select from two different peripherals or use one peripheral and choose from two different computers to control it. Great for Modems, printers, etc.

The A-B switch controls RS232 lines 2-9, 12, 20, and 22, with line 1 being the common chassis ground. Size is 6" x 8" x 3" high.

RS232 12 Pin Cable 7 ft. \$19

*ADD \$2 SHIPPING & HANDLING.



\$266.00*
REG. \$295.00

ANGEL Printer BUFFER

- UP TO 128K OF STORAGE
- 14 "SMART" MODES
- EASY INSTALLATION

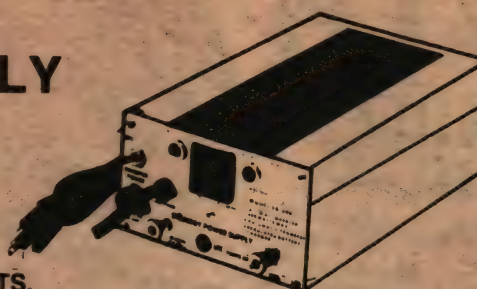
ANGEL, the Intelligent Buffer is the perfect mate for your system. It has both RS232 Serial and Parallel interface, and can convert from serial to parallel and parallel to serial.

ANGEL passes data to the printer exactly as received from the computer and is independent of software - including graphics. The ANGEL also features an innovative page mode which carefully monitors the page break data during printing. Under the page mode you can reprint the last page, jammed pages, do page skip as well as page pause for single-sheet feeding.

*\$3 Shipping & Handling

STAND-BY POWER SUPPLY

Automatically
Supplies 117 VAC
DURING POWER
FAILURE



MODELS FROM 200 TO 2000 WATTS.
FOR USE WITH COMPUTERS,
PHONE SYSTEMS, ETC.

- SWITCHING TIME 10 MILLISECONDS
- AUTOMATIC LOAD SWITCHING
- AUTOMATIC BATTERY CHARGE

200 WATT UNIT @ 60 HZ \$179.00 EA.
400 WATT UNIT @ 60 HZ \$259.00 EA.
1000 WATT UNIT @ 60 HZ \$539.00 EA.

* Please add \$10 for shipping & handling

SOLA UPS AVAILABLE FROM 1 KVA TO 15 KVA

LINE CONDITIONER

PREVENTS PROBLEMS DUE TO
"VOLTAGE SAGS" AND JUMPS

- AUTOMATIC VOLTAGE REGULATION (both high and low voltages)
- 98% EFFICIENCY, NO WAVE FORM DISTORTION
- 2% LOAD REGULATION FROM NO LOAD TO FULL LOAD
- FRONT PANEL LED STATUS LIGHTS
- ONE YEAR WARRANTY



PLEASE ADD \$7.00 EACH
FOR SHIPPING & HANDLING

LC1800 watt load **\$229.00**

LC1200 watt load **\$169.00**

MULTI-BUFFER ACTS LIKE 3 PRINTERS

Networks 3 CPU's to access one printer and with no switches needed to change the configuration. This 64k (up to 512k available) buffer will automatically buffer all output from the CPU's and to the switching between the CPU's to the printer. Which means no more switching cables, switching switches, or waiting for the printer to finish its job. Data is dumped into the Multibuffer as fast as the computers can send it which frees up the CPU's alot sooner, which means no wasted time.

Features included are a Memory Indicator, Pause, Copy, and Reset.

Standard 36 pin Centronics connectors for easy installation.

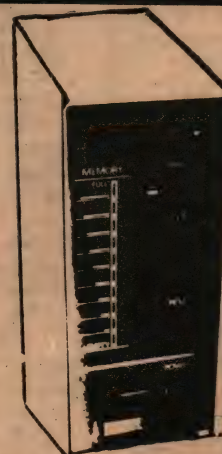
CENTRONICS CABLE \$19

*ADD \$4 FOR SHIPPING & HANDLING

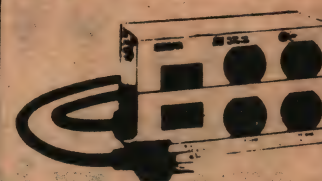
IBM Parallel cable & compats 6 ft \$20 *
RS232 25 pin shielded 7 ft \$29 *
36 Pin Centronics Shielded 10 ft \$29 *

CUSTOM CABLES
AVAILABLE

* Please add \$2 for Shipping & Handling



\$366*



ISOBAR™

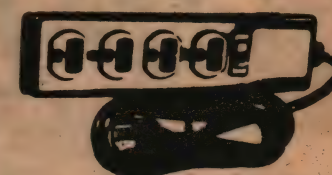
PROTECTS YOUR COMPUTER

RFI, EMI Surge/spike and noise protection. Plus load to load isolation that is a must for every computer system.

Model	Outlets	Banks	Bkr.	Price Each
IBAR 4-6	4	2	15 AMP	\$54.88
IBAR 8-15	8	4	15 AMP	\$74.88

\$2 Shipping & Handling

VOLTAGE SPIKE PROTECTORS



\$27.88*
RETAIL \$49.95

- Metal case
- On/off switch with pilot light
- 6 ft. cord with three-prong grounding plug
- Push-to-reset circuit breaker protects against power overloads

ADD \$2 SHIPPING AND HANDLING*



\$14.88*
RETAIL \$29.99

- Wall plug-in unit
- 6 "U" ground outlets
- Pilot light constantly on - shuts off when overload to indicate filter not operating
- Internal overload protection

ADD \$2 SHIPPING AND HANDLING*



\$8.88*

- Single polarized grounded outlet
- Absorbs spikes
- Pilot light
- Rated 15A 125V

ADD \$2 SHIPPING AND HANDLING*

4164's
\$13.00*

Set of 9

Certified Texas Instruments
150 nanosecond chips

*\$1.50 Shipping & Handling

NO EXTRA CHARGE FOR



OR



DEALER INQUIRIES WELCOME
IL RES ADD 7% SALES TAX

SHEPHERD MARKETING

P.O. BOX 941339 SCHAUMBURG, IL 60194

ORDERS ONLY
1-800-AC-SPIKE

TECH SUPP. & ILL RES.
1-312-894-5331

COME SEE OUR SHOW ROOM AT 800 LUNT AVE., SCHAUMBURG

When You Buy from the **Biggest**
You get the **Best** of Price and Service...

LOGICSOFT

IF YOU CAN FIND A
LOWER PRICE...

We'll
Beat
It By...

\$10

Tell us the advertiser and price of any items on this page currently advertised in any popular computer publication, and we'll beat that price by \$10. This offer does not apply to items under \$100, AM. Exp. or Terms orders. In these instances we will meet any lower price. No Dealers Please!

FREE

OVERNIGHT DELIVERY

VIA... **Purolator**
Courier

On orders totalling over \$100 ...
Shipped UPS FREE if under \$100
(Within Continental U.S.)

LOGICSOFT'S
PRICE One reason why you would love to buy mail order.
We beat any price by \$10 on orders over \$100.
CONFIDENCE One reason you may not have until now!
Free Overnight Delivery...now that's confidence.
GUARANTEE



GENERAL HARDWARE

PRINTERS*		MONITORS*		COMMUNICATIONS BOARDS (cont.)		MODEMS (cont.)	
DIABLO		AMDEK		AST-3780	749	Quadmodem 2024	499
36**	\$1229	Color 300	\$255	DCA		Quadmodem 2100	375
D25**	619	Color 500	389	IRMA Board	\$949	Quadmodem 2124	565
630-ECS**	1799	Color 600	479	QUADRAM		RACAL-VADIC	
EPSON		Color 710	579	Quadlink	\$449	Maxwell 1200 PC (w/SW)	\$239
LQ1500	\$1199	12" Green 300G	135	GRAPHICS BOARDS		Maxwell 1200 V (w/SW)	239
Parallel Interface	79	12" Amber 300A	145	AST		2400 V	435
JX-80	599	12" Amber 310A	169	Monograph plus	\$425	VEN-TEL	
LX-80**	265	PRINCETON GRAPHICS		Preview	279	PC Modem Half Card	\$379
LX-80 Tractor Feeder	30	RGB HX-12	\$489	EVEREX		PC Modem 1200	399
RX-100	399	RGB SR-12	599	Graphics Edge	\$309	1200 Plus	399
FX-80 Plus**	379	Scan Doubler Board (for SR 12)	185	The Edge	299	BACK-UP DEVICES	
FX-185 (New)**	569	Amber Max-12E	185	HERCULES		ALLOY	
JUKI		QUADRAM		Graphics Card	\$299	PC Quick Tape (60Mb)	\$1719
6100	\$439	Quadchrome 12"	\$465	Color Card	169	SYSGEN	
6300	799	Quadscreen 17"	1595	MA SYSTEMS		Image (10Mb)	\$835
MANNESMANN TALLY		Quadchrome II 14"	465	Peacock Color Board	\$245	MOUSE INPUT DEVICES	
Spirit 80	\$279	Amberchrome 12"	165	PARADISE SYSTEMS		PC Mouse w/paintbrush	\$139
160	579	TAXAN		Multi-Display Card	\$215	MICROSOFT	
180	849	100G	\$125	Modular Graphics Card	289	Microsoft Mouse (Serial)	\$149
NEC		105A	135	Options A & B	Lowest Price	Microsoft Mouse (Buss)	139
2030**	\$719	121	149	QUADRAM		SURGE PROTECTORS	
2050**	695	122	149	Quadcolor I	\$195	KENSINGTON MICROWARE	
3530	1329	210	259	Quadcolor II	465	Master Piece	\$115
3550	1395	420	409	SIGMA		CURTIS	
8850**	1949	440	699	Color 400	\$549	Diamond	\$39
Pinwriter P2**	675	MULTI-FUNCTION BOARDS		STB		Emerald	49
Pinwriter P3**	895	AST RESEARCH		Graphics Plus II	\$315	Sapphire	59
OKIDATA		Six Pak Plus (64k)	\$249	TECMAR		Ruby	69
182P	\$239	Mega Plus II (64k)	275	Graphics Master	\$459	KEYBOARDS	
84-IBM	799	Mega Pak (256k)	369	TSENG LABORATORIES		KEYTRONIC	
192 IBM	409	Advantage (128k)	429	Ultra Pak	\$545	5150	\$159
193P	559	I/O PlusII	135	MODEMS		5151 (Deluxe)	175
2410P	2295	ORCHID		HAYES		5152B	645
QUME		Blossom (0 k)	\$235	Smartmodem 300	\$205	MEMORY CHIPS	
Sprint 11/40**	\$1299	QUADRAM		Smartmodem 1200	445	64k (200ns)	\$35
Sprint 11/55**	1595	Quadboard (64k)	\$245	Smartmodem 1200B w/smartcom II	\$349	256k (150ns)	69
Sprint 11/90**	2199	STB		Smartmodem 2400	719	DISKETTES	
SILVER REED		Super Rio (64k)	\$329	NOVATION		LOGICTRAK 5 1/4" - 100% GUARANTEED	
400	\$279	Rio Plus II (64k)	259	Access 1-2-3	\$475	Double side, double density, 10 per box	
770	795	Rio Grande	375	Smart-Cat Plus (Int.)	355	20 + boxes	per disk \$2.35
TOSHIBA		Grande Byte	275	Professional 2400	689	10-19 boxes	per disk \$2.50
P351 Tractor	\$165	Chaufeur	Lowest Price	PRENTICE		2-9 boxes	per disk \$2.99
P351	1375	TECMAR		Popcom X100	\$379	1 box	per disk \$3.99
1340	539	Captain	\$199	Popcom C100	355	WE'RE FRESH!	
CITIZEN		COMMUNICATIONS BOARDS		PROMETHEUS		We ship only the latest versions available...that's our current version guaranteed!	
MSP10	\$315	AST		Pro modem 1200	\$375		
MSP15	455	AST 5251-11	\$699	Pro Modem 1200B	319		
MSP20	455	AST-SNA	699	QUADRAM			
MSP25	595	AST BSC	699	Asher	\$395		
				Quadmodem 2000	315		

* Due to weight restrictions, Printers and Monitors are shipped UPS. FREE! ** Parallel Interface req. ask sales agent.

• NO SURCHARGE for VISA or MasterCard • No Sales Tax on Orders Outside N.Y. State • Purchase Orders Welcomed from Qualified Institutions. • NO SURCHARGE (Please call for price verification) • Please add 2% for handling and insurance (Int'l. orders add 1.) • Payment: MasterCard, VISA, American Exp., C.O.D., Money Order or Check.



National Sales
Hotline

1-800-645-3491

Customer Service 1-800-431-9037

New York State - 516-249-8440 Canada - 416-283-2354 Domestic/International Telex - 286905 Soft UR

SOFTWARE for IBM PC

WORD PROCESSING		FINANCIAL (cont'd.)	
Wordstar 2000	\$259	Market Analyzer (Dow Jones)	269
WORDSTAR 2000 PLUS	305	GRAPHICS	
Wordstar Pro Pac	265	CHARTMASTER	\$275
Wordstar Pro Plus	345	Signmaster	195
WORD PERFECT (New Release)	225	BPS Graphics	289
Microsoft Word	235	Fast Graphs	265
Spellbinder	Lowest Price	pts: graph	85
MULTIMATE	249	GRAPHWRITER	319
Volkswriter Deluxe	165	Graphwriter Combo Pak	485
Peachtext 5000	199	DIAGRAM MASTER	195
Easywriter II/Speller/Mailer	195	Microsoft Chart	175
Edix & Wordix	255	ENERGRAPHICS	259
Finalword	225	Energraphics with plotter option	325
Samna III	325	PC Draw	295
Xy Write II Plus	255	Gem Draw (incl. Desk Top)	95
Think Tank	125	PROJECT SCHEDULERS	
pts: WRITE	85	MICROSOFT PROJECT	\$165
Wordplus PC with Boss	359	SuperProject (IUS)	245
DATA BASE MANAGEMENT		HARVARD TOTAL PROJECT MGR	265
KNOWLEGEMAN	\$259	Project Scheduler (Scitor)	245
Cornerstone	Lowest Price	Project Scheduler 5000 (Scitor)	279
Tim IV	189	LANGUAGES/UTILITIES	
R:Base 4000	265	Concurrent PC DOS w/windows	\$175
R:BASE 5000	365	Pascal MT + (PC DOS)	349
DB Master	475	PL/I (DR)	489
d Base II (New Release)	299	Display Manager (DR)	359
Condor III	349	Access Manager (DR)	269
d BASE III	\$369	LATTICE C COMPILER	305
Clipper (d Base III Compiler)	399	C-Food Smorgasbord	119
Data Base Manager II (alpha)	175	CIS Cobol 86 (DR)	479
Infostar plus	159	Pascal Compiler (MS)	245
Friday	169	C Compiler (MS) (New Release)	305
pts: file & pts: report	165	Microsoft Sort	159
REVELATION	745	Cobol Compiler (MS)	479
Powerbase	255	Business Basic (MS)	299
Personal Pearl	229	FORTRAN COMPILER (MS)	229
Easyfiler	235	C86 C Compiler (Computer Innov'ns)	345
Superfile	159	MISCELLANEOUS UTILITIES	
Guru	1695	Fancy Font	\$159
INTEGRATED/SPREADSHEETS		Wordplus (Oasis)	115
LOTUS 1-2-3 (V 2.0)	\$305	pts: proof	65
Enable (New Version)	399	Punctuation & Style	99
Smart Series	579	Spellix	59
Ability	339	Wordperfect Sorter	75
FRAMEWORK	359	Quickcode III	159
Open Access	395	d Graph III	175
Electric Desk	229	d Util III	65
SYMPHONY (Limited Quantity)	429	k Graph	175
Supercalc 3	179	k Paint	85
Multiplan	129	k Text	109
TK! Solver	279	Clout 2	145
pts: plan	85	Extended Report Writer	119
FINANCIAL		PROKEY 4.0	89
DOLLARS AND SENSE	\$115	Norton Utilities (New Release)	65
Financier II	115	SIDEKICK (unprotected)	65
MANAGING YOUR MONEY	\$119	Crosstalk XVI (New Release)	115
Home Accountant Plus	99	Smartcom II	109
Howard Tax Preparer	195	Sideways	45
Professional Tax Planner	319	Copy II PC	39
Fixed Asset System (BEST)	439	DESK ORGANIZER	65
Market Manager Plus (Dow Jones)	179	Prices and Policies subject to change without notice	

LOGICSOFT

(Dept. G) 110 Bi-County Blvd.
Farmingdale, N.Y. 11735

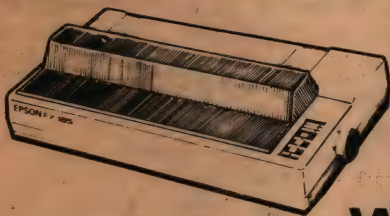


PRINTERS *Plus*

User-Friendly Prices

800-562-2727

NEW! From **EPSON FX-85**



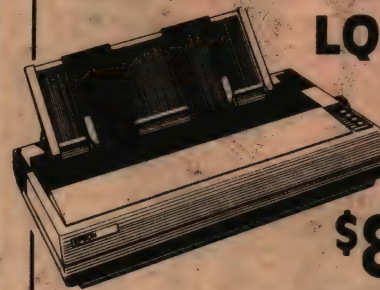
\$339.
WITH NLQ
(REPLACES FX-80+)
Suggested Retail \$499.

FX-185 WITH NLQ
WIDE CARRIAGE
(REPLACES FX100+)

\$459.
Suggested Retail \$699.

- 160 CPS
- NLQ MODE • 8K BUFFER
- SELECTYPE™ • 160 TYPESTYLES
- ONE YEAR WARRANTY

EPSON LQ-1500



\$827.
Suggested Retail \$1295.

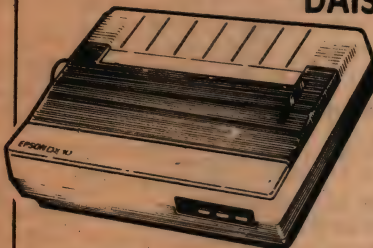
**DRAFT TO LETTER QUALITY
IN ONE AMAZING PRINTER**

- 24 Pin Printer
- 200 CPS Draft Mode
- Over 200 Typestyles
- Ultra-High Resolution Graphics
- Four Times Faster than the Average Daisy Wheel at 67 CPS — Letter Quality

New Low Prices On Options

NEW!

**DIABLO COMPATIBLE
DAISYWHEEL PRINTERS**



Standard Epson Code
To Work With Most
Popular Computers

EPSON-DX-10

- 10 CPS • 1 YEAR WARRANTY

\$234.
Suggested Retail \$299.

EPSON-DX-20

- 20 CPS • 110 COLUMN
- ALL-PURPOSE INTERFACE

\$339.
Suggested Retail \$499.

**Quantity
Pricing
Available
Upon
Request**

NEW! EPSON AP-80
for APPLE'S Macintosh - IIC - IIE

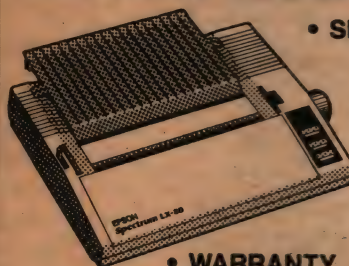
- WITH NLQ • IMAGE WRITER
- TRACTOR FEED • COMPATIBLE

Call For Price

EPSON LX-80

Suggested
Retail Price \$299.

\$214.



- **SPEED** — 100 characters per second
- **QUALITY** — Near letter quality mode
- **EASE-OF-USE** — Choose popular typestyles from top control panel with SelectType™
- **VERSATILITY** — Over 160 possible typestyles — Mix text and graphics on the same line

- **WARRANTY** — Epson's one year warranty

LX-90

Suggested
Retail Price \$329.

\$225.

WITH TRACTOR
FEED

PIC Cable Interfaces Available For:

- IBM JR. & PC • ATARI • APPLE IIC • GENERIC PARALLEL • COMMODORE

**Special Pricing For
DEALERS ... VARS and other
Qualified Resellers**

DAISYWHEEL PRINTER

**ComRiter
CR-IIE**

Suggested Retail \$599.

Special Price

\$266.

EPSON SQ-2000

\$1,459.

LETTERJET

H5-80 \$319.

**Qualified Corporate & Educational
Purchase Orders Accepted**

1-800-562-2727

Or in Missouri call: 1-314-227-4371



PRINTERS PLUS / 910 Clayton Rd., #217, Ballwin, MO 63011



SHIPPING AND HANDLING AT ADDITIONAL COST. (MC AND VISA AT NO ADDITIONAL CHARGE.) OFFER GOOD WHILE SUPPLY LASTS.

PRICES ARE IN EFFECT UNTIL DECEMBER 31, 1985. SOME ITEMS MAY NOT BE AVAILABLE ON PUBLICATION DATE.

Computer Power

Continued from page 10

tion is whether the device you buy will protect you from surges, spikes and noise. This can only be answered by reading and understanding the manufacturer's specifications. If these specs. are incomplete or nonexistent, then you must assume the protection is not offered, or that the device has not been properly tested. The other question concerns your application. If you are in a laboratory and have special requirements regarding the amount of noise protection in a specific frequency band, then you need to speak directly to a manufacturer.

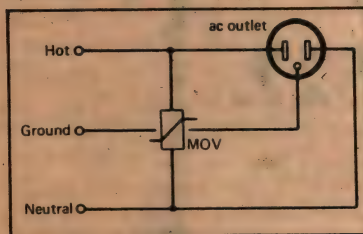


Fig. 1. Good protection is provided by any number of commercial products with MOV devices.

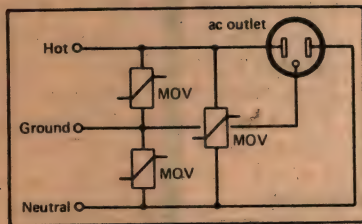


Fig. 2. Better protection is afforded when three MOV devices are wired across the prongs as shown.

A warranty, or guarantee for one year is standard on some units, 5 years is given on others. No coverage is an unacceptable choice. Some units conform to underwriter laboratory standards and should bear its label if they do. A standard has been established by the IEEE called IEEE 587-1980 *Guide for Surge Voltages in Low Voltage AC Power Circuits*. If equipment conforms to this standard it will say so.

The problem with most of surge, spike and noise protectors offered is they do not include a voltage monitoring system. A voltage monitor identifies low, high, normal, or high surge and loss of protection. The three exceptions are the NORTONICS CMP-905, Sutton Designs ZX4UVRAN and the IMMAC #6669VN units.

There may be other devices with these features of which I'm unaware (at the time of this writing there are more than 100 hundred devices currently available). If you cannot identify loss of protection then you may NOT be protected. A number of units do have a LED indicator which signals that current is flowing through the device. A few units state openly that these LED in-

dicators will signal when the device has become inoperative (FRIED !!!), however, some don't. Some units have no LED indicator but have a fuse which opens if the device fails and will no longer permit any outlet on the device to transfer power. This fuse cannot be replaced by the consumer requiring the consumer to recognize the problem and contact the manufacturer (if under warranty) to replace the unit. Some units continue to supply power even though their protective circuitry may be dead. The responsibility for understanding the devices operation is yours.

I prefer the voltage monitor because there should be no question that the unit has failed. This is one of the central issues in determining what and what not to buy. Addition of a voltage monitor makes the device more expensive because a real logic circuit must be employed to sense voltage conditions.

Reading Spec. Sheets

In the Spike/Surge suppressor chart you will see the terms CLAMP LEVEL SUPPRESSION (V) voltage, CLAMP RESPONSE (SEC), RFI FILTER and JOULES a rating in Watt X (SEC). These four specifications are a measure of how good your surge/spike protector really is relative to others presented. The first term clamp level suppression voltage is a measure of the sensitivity of the MOV circuitry to a voltage surge. This is the voltage at which the MOV begins to resist a voltage surge or spike. Because normal A.C. voltage and current occurs as a sine wave it varies between a low and a high voltage, with a normal high (PEAK) of about 169 + - 10% volts. The perfect MOV filter would clamp any voltages above this peak. All these devices have a max let through voltage at some given current, this is the part of the surge or spike which could not be stopped. Surge and Spike suppressors with an initial clamping voltage that is 300 or 400 volts are NOT filtering surges or spikes which are below their initial clamping voltage level. The smaller the clamping voltage above 169 volts the more sensitive and effective the surge or spike protector.

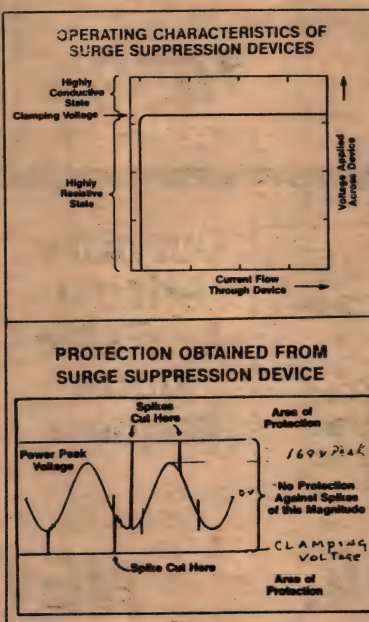
There is some confusion on spec. sheets because they may use the term RMS voltage and Peak to Peak voltage to show the value of their clamping voltage. Since the (RMS) voltage is always smaller than the peak voltage, it is closer 120 + - 10% volts, and makes it seem the spike or surge protector is actually filtering in a region which it really can't, or

that the performance of one device is vastly superior to another.

The term RMS is used to equate D.C. voltage ad A.C. voltage, RMS is effective D.C. voltage equivalent for an A.C. voltage. The technical definition is root-mean-square (RMS), the square root of the average of the squared values between zero (0) volts and a maximum of (169) volts in our case. Example, the peak voltage on the sine curve is 169 V. The true RMS voltage is 120 V. To convert to RMS voltage from peak voltage, multiply by .707, to convert to peak voltage from RMS voltage multiply by 1.41.

$$169 \text{ volts peak} \times .707 = 120 \text{ volts (RMS)} \pm 10\%$$

$$120 \text{ volts (RMS)} \times 1.41 = 169 \text{ volts peak to peak} \pm 10\%$$



See Figures 3 and 4.

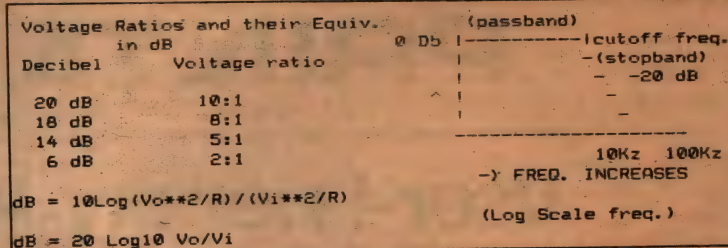
This is where the A.C. line conditioner has the edge on all surge/spike protectors; they filter most surges and spikes well below 169 volts. They can do this because they regenerate a clean signal using a transformer.

The CLAMP LEVEL PEAK is the maximum voltage at a given current in amps, milliamps, microamps, which the MOV device can handle. A number of manufacturers use MOV devices for several voltage levels (multi-stage) to increase the units maximum clamp level peak voltage.

The next term clamp response time in seconds, is a measure of how quickly the MOV circuit can sense an over-voltage has occurred and begin to clamp it. The smaller this value the more sensitive the device and the better it will be able to filter. Any value of 1ns or less is excellent. See terminology for an explanation of milliseconds, microseconds, nanoseconds, etc. The clamping response time also separates surge suppressors from spike suppressors; devices which cannot clip events shorter than

500 uS are not spike suppressors. A rule of thumb would be if the clamp response time is in the microsecond (uS) range

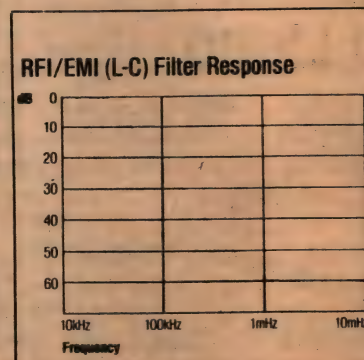
respond by increased efficiency. At -20 dB per decade as the frequency increases. What you can visualize is a graph with a



then the device is not a very good spike suppressor.

The RFI filter also gives protection in a specific range or band of frequencies, the wider the frequency range the more protection is being offered. These filters are NOT equally effective in the entire range of frequencies they specify. A range from 10 thousand cycles (10KHz) to 50 million cycles (50 MHz) is very good, this is the stop band where we hope the RFI, EMI filter is stopping all signals above 10 kHz. See Figure 5. Below 10 kHz is the passband where your signal should not need protection. The RFI, EMI filters work in two modes, differential mode, events which occur across the normal current carrying wires of the power line hot wire to neutral wire, and common mode events which occur from the current carrying wires, hot and neutral, relative to the safety wire ground.

The problem is the spec. for noise rejection in these devices is often explained in terms of decibels (dB) as the unit of measure of the effectiveness of the device over a broad range of frequencies. The specs. either give a range and says attenuation in the given range or they may give individual frequencies and note a minus decibel number for the frequency.



The trouble is most people can't distinguish a decibel from a cow bell. This dB number explains how well the filter works as ratio of voltage into the filter and out of it as the frequency increases on a logarithmic scale. The logarithmic scale increases by decades, 10, 100, 1000, etc. If the voltage coming out is larger than the voltage entering then there is a gain and the dB is a positive number if it is smaller then dB is a negative number and there is a loss. If dB = 0 then the loss is 0, if it is negative, most filters

slope moving down to the right with the base line representing increasing frequency in decades. Example, see Figure 5 from the cutoff point where the dB number becomes negative to the -20 dB point the filter is 100 more effective at removing noise as it was just after the cutoff point. The key is to know where the cutoff point is, the frequency at which you begin to gain protection. There is no standard for presenting this information and manufacturers give as little information about this as possible in their spec. sheets. If you want to know more you must ask them about the frequency response of their RFI, EMI filters.

The peak energy in (Joules) is a measure of how quickly the device can dissipate the power of the surge as heat. The larger this value the better its response to multiple surges and the longer the device may last. JOULES = WATTS X TIME some manufacturers reinterpret this equation as WATTS = JOULES/TIME the smaller the number for the time the larger the rating in watts appears.

A device with a 20 Joule rating can have a 2,000,000 watt rating while a 50 Joule device may show a 500,000 watt rating. Always ask for the energy dissipation stated in Joules. If you don't understand the spec. sheet ask the manufacturer to explain it. If he has trouble explaining it to your satisfaction then look for another surge/spike protector.

Now that the computer has been protected, what protects the surge/spike suppressor? If the surge or spike protector or A.C. line conditioner cannot ride through multiple surges or spikes, but has a built-in circuit-breaker, or fuse; it can disconnect itself from all power if it's fuse rating is exceeded. These devices also age and the MOV will breakdown over time if it is doing its job properly. Therefore, it should be checked periodically. If you have that voltage monitor or LED this is when it should tell you that you have lost protection, and your device is dead.

The fuse or circuit breaker is normally rated at 15 amps; if

Continued on page 15

Editorial

By Stan Veit

Welcome, Franklin.

It is always a sad event in our world when a computer manufacturer goes out of business or drops a line of computers. That is why we celebrate the launch of the Franklin 2000 series of personal computers. Like Osborne, another survivor company, Franklin had problems that might have caused another company to throw in the towel. Lawsuits with Apple drained off their assets. They had to come up with a ROM that did not infringe on Apple's copyrights and design a completely new computer. Cheap clones from Asia hurt Franklin as much as they hurt Apple and it didn't look like they had the resources to ride out the storm.

With a lot of courage and a firm-handed management team, Franklin took the steps necessary to streamline itself and to gain needed capital, a new product and dealers.

Franklin credits *Computer Shopper* for helping, because here they found buyers who knew a great bargain when they read about it. By running ads in this magazine, Franklin was able to sell off its inventory

of current computers directly to the public, thus realizing a larger return than if they had sold through discount stores or liquidators.

We are proud to present the first view of the Franklin 2000 Series to our readers, we are already testing a preproduction unit and we will soon get a production computer to complete our tests on. All we can do at this point is to lift the cover a little and say, "I like it, I like it!"

Listening to the news, I heard that the Board of Directors of Apple Computer is trying to unseat Steve Jobs from his toe hold as Chairman. They have already sacked him from his real power seat with the Macintosh and now they seem to be trying to reduce him to being a silent stockholder. Can you think of Apple without Steve Jobs and Woz? I can't, but when I mentioned this to a young executive in our company he asked "Who is Jobs?" It is nine years since I sat in Steve Jobs' parents house in Los Gatos and heard him describe his wild plans for building the biggest small computer com-

pany. No one took him seriously until he gathered a first rate team about him and did everything he said he would do. He built his company, became rich and famous and now another day has dawned. This is the time of the pitchman and the bean counter, not of the dreamer and inventor. Thus it is always in any technological revolution. The inventors make it possible, the pioneers bring it to the public and then the business "experts" reduce it to the lowest common denominator and make it a commodity.

If you don't think that personal computers are in that stage, look around. I am reviewing a PC clone that is being sold by one of our advertisers. It is made in Asia, has all the features of the IBM and American built clones, except decent mechanical quality. It sells for far less than any Western manufacturer could build it for and basically there is nothing wrong with it. It works and runs all the MSDOS software. I used to look at oriental electronics and I could see the bad electrical construction, not so with this PC. It is

perfectly wired and has first rate chips and drives. This is a very dangerous machine because it is a generic PC computer and it can be used, repaired and traded like any other appliance. The bad part is that it will fix the state of the art in its present position and stop the rapid development of the personal computer. It will also retard software design and decrease competition in the industry.

I am not a political person but I do know that we have exported our entire electronics manufacturing industry and the jobs that went with it. We are about to do the same thing with the personal computer industry and when our industrial leaders ask for protection they are told that "protectionism" is bad and only invites retaliation. What I want to know is, how can Taiwan, Hong Kong or Korea retaliate against the U.S.? Sure, Japan is another story and we should try to come to some agreement before we wage industrial war with them. The Japanese know that they must engage in mutual trade with us, but they

will not do it until they have tried every other trick in the book to retain their present advantage. Why should they?

Robotics

In this issue we re-start our ROBOTICS section with an article by Tim Knight, a young man who still believes that Personal Robots are the "wave of the future." Tim published his own magazine *Personal Robotics* but the supporting industry has not developed enough in order to pay the production costs of a magazine. I still believe that our readers are interested in this subject. We only dropped the previous section because Bill Dodd our columnist left the personal robotic field to build real robots. His company Hobby Robotics held on for as long as it could but the market did not develop. This is the opposite face of the success coin, Bill Dodd is the same kind of dreamer and pioneer as Steve Jobs, but personal robots just never took off. If you have ideas for Robotics articles or if you have built a Robot, send me information about it. We need your help to make this section a success. ●

FRANKLIN ACE

Continued from page 8

not only compatible with both Apple DOS 3.3 and the new Apple PRO-DOS, but operates 7-10 times faster on disk access functions.

Additional Features of the ACE 2000

The power supply is rated at 67.1 watts -- it is designed with a built-in fan to run cooler and last longer than other comparable computer power supplies. This extra capacity allows the addition of an internal hard disk drive, co-processor boards, and numerous additional plug-in cards without straining the power supply or overheating the computer.

The computer case is made of steel with a molded plastic front bezel, and contains the central processor "mother board," power supply and disk drives (where applicable), all in one sturdy unit.

The FRANKLIN ACE disk drives utilize 40 tracks and can store up to 164K per disk, providing 21K more storage than is available on Apple drives.

FRANKLIN DOS 2 utilities allow disks to be formatted with either 35 or 40 tracks.

Five LED indicator lights grouped together on the front of the unit advise the user at all times of current computer activity. Viewed from left to right, the lights indicate:

- Power-on, power-off
- Diagnostic self-test
- Disk status
- Double high-resolution active
- CPU (Central Processing Unit) activity. (It is dim and flickering when the computer is "idling its engine," but glows steadily when the computer is working hard.)

Two LED indicators have been included for each disk drive. A red light indicates whether the drive is active, and a green light indicates that the drive head is writing to disk.

A built-in parallel printer interface will drive most popular parallel printers. Software drivers have been provided for the four most common printers to facilitate "screen dump" capabilities from users' BASIC programs and application software. The built-in cable connector accepts the standard IBM-PC printer cable.

The ACE 2000 series has 128K of RAM and is expandable to 576K.

The disk drive controller on the ACE 2000 series is an integrated circuit chip, not a

card as it is in the Apple, thus saving power and increasing reliability.

Special "Open-F" and "Closed-F" keys on the ACE 2000 series provide the same functions as the analogous keys on the Apple IIe and IIc.

The ACE 2000 series has a built-in game port with both 9 and 16-pin connectors. The 9-pin connector is mounted at the rear of the computer, the 16-pin connector on the mother board.

Two expansion slots are left open on the mother board for Franklin and Apple compatible plug-in cards. A bus connector mounted on the side of each ACE 2000 series computer is wired directly to the computer mother board and allows for the addition of a four-slot expansion chassis or other peripherals that may be developed by outside manufacturers.

An 80-column card is included on-board, which avoids sacrificing an expansion slot.

The high-resolution 22 megahertz bandwidth monochrome monitor available for the ACE 2000 series utilizes a non-glare 12-inch flat screen, has its own tilt and swivel base, and is capable of 1,000 lines of horizontal resolution.

The FRANKLIN ACE 2000 series comes with a built-in speaker and adjustable volume control. ●

Computer Power

Continued from page 14

our system was on a 20 amp circuit this would protect your equipment. If the unit has a 15 amp fuse you could change this to a 10 amp making the unit more sensitive to over-current surges. To do this you must be positive your system does not use more than 8 amps of current, this leaves a 2 amp margin for safety. 8 amp X 120 V = 960 watts, the total for all devices on the circuit must not exceed 960 W.

If you are selecting an (Uninterruptable Power Supply) UPS system, the other factor is the VOLT AMP (VA) rating. The Watt rating of the power protection device must exceed the power requirements of your computer and its peripherals. Check all spec. plates on the components, add up the volt amp (VA) and watt rating and you have the total system requirement. If your spec. plates have the volt amp (VA) rating for your system then add 25% to that number and select your unit. If you don't have (VA) listed, then assume a power factor of .4 for your system. The (VA) can be computed by $VA = WATTS/POWER\ FACTOR$ then add 25% of the watt total and select your unit. Example:

Apple system CRT, 2 drives

Total watt rating = 90 W
25% = 22.5

VA = 90/.4 + 25% (WATT)
VA = 225 + 25% (22.5)
VA = 247.5

The unit you select must be in Volt Amps (VA) not Watts. If you select a unit based on Watts it may be too small for your application. A 200 W computer needs approx. 2.25 times its watt rating to have adequate power. A 200 W computer needs 400 + W not 200 W.

Power Supply Watt Rating

90 WATT RATING (add printer or hard disk to this rating)

Apple II or Apple III with dual drives and monitor
Couier Portable
Hewlett-Packard desk-top models (85, 87, 125, etc.)
Kaypro II
Micro Source M6000P
Osborne I
TRS-80 Model III
Victor 9000
Zenith Z-89 Heath

200 WATT RATING
Apple II/III system with hard disk
Eagle Computer
IBM Personal Computer

Continued on page 182

The reversal of the ad pages of Conroy La-Pointe's advertisement in the September 1985 issue was due to an error by *Computer Shopper* and not the advertiser. The *Computer Shopper* accepts the responsibility for the pages appearing on the wrong side and regrets any problems that may have occurred because of the print error.



ATARI

800XL	CALL
130XE (NEW)	CALL
520ST (NEW)	CALL
1050 Drive	165
1010 Recorder	42
1020 Printer	55
1025 Printer	159
1027 Printer	179
850 Interface	109

ATARI SOFTWARE (NEW)

Codewriter	35.75
Filewriter	20.75
Reportwriter	20.75
Menuwriter	20.75
Home Integrator	19.75
Small Bus Inventory	11.75
Salesman Expenses	11.75
Accs Rec/Pay	11.75
Retail Invoice	11.75
Final Legacy	15.75
Adventure Writer	18.75
Star Voyager	11.75

SSI (Atari)

Colonial Conquest	24.75
Field of Fire	24.75
Kampfgruppe	36.75
Objective: Kursk	24.75
Market Garden	29.75
Six Gun Shootout	24.75
War in Russia	49.75
Computer Baseball	24.75
Computer Quarterback	24.75
Gemstone Warrior	22.75
50 Mission Crush	24.75
Questron	29.75

SPINNAKER

Delta Drawing Room	19.95
Cosmic Life Room	19.95
Up for Grabs Room	19.95

PERSONAL PERIPHERALS

Super Sketch C-64	29.95
Printer Utility C-64	14.99
Super Sketch Atari	25.95
Super Sketch Apple/Ibm	55.00

SUB LOGIC (Atari)

Flight Simulator II	32.75
Night Mission Pinball	20.75

ATARI

850 Interface	109
---------------	-----

CONTINENTAL

Home Accountant	44.75
1985 Book of Atari Software	16.95

TRONIX

S.A.M. - Atari	38.50
S.A.M. - C-64	38.50

ADVENTURE INT'L (Atari)

Diskey	32.75
Ultradissambler	32.75
Maxi Golf	18.75
Ralley Speedway	26.75
Whomper Stomper	18.75
Adventures 1-12 each	14.50
Adv. Hint Book	5.50

MICROPROSE (Atari)

Kennedy Approach	21.75
Crusade in Europe	24.75
Decision in Desert	24.75
Solo Flight	20.75
Nato Commander	20.75
Spitfire Ace	18.75
F-15 Strike Eagle	20.75
Hellcat Ace	18.75

SYNAPSE (Atari)

SynFile	33.75
SynCalc (AT/C-64)	33.75
SynComm	26.75
SynTrend	26.75
SynChron	26.75
SynStock	26.75

BRODERBUND (Atari)

The Print Shop	28.95
Graphics Library	18.95
Graphics Library II	19.50
Bank St. Writer	42.75
Whistler's Brother	18.95
Spelunker	18.95
Sleath	18.95
Serpent's Star	24.95
Mask of the Sun	24.95

SCARBOROUGH (Atari)

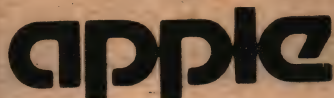
NET WORTH (AT/C-64)	48.75
Mastertype	22.75
Improved Mastertype	23.75
Mastertype Filer	22.75

US ROBOTICS

Password 1200M	229
Password 1200F	229
Password 300M	139
Password 300F	139
Autodial 212A	359
PCM5	319
PCM64	519
PCM256	769
S-100	379
Courier	469
MicroLink	469
Telpac Ms-DOS	79

RACAL-VADIC

2400PC	549
2400PA	799
2400V	559
1200PC	329
300V	205
300PC	199
George Software	69



SCARBOROUGH (Apple)

NET WORTH	48.75
Improved Mastertype	22.75
Mastertype Filer	22.75

BRODERBUND (Apple)

The Print Shop	31.50
Graphics Library	18.50
Graphics Library II	18.95
Paper Refill	11.95
Bank St. Writer 64K	41.50
Bank St. Writer 128K	42.75
Bank St. Filer	42.75
Bank St. Mailer	42.75
Bank St. Speller	42.75
Carmen Sandiego	22.75
Karateka	22.75
Captain Goodnight	22.75
Muppey Cruise	25.75

SUB LOGIC (Apple)

Flight Simulator II	32.75
Night Mission Pinball	20.75

MICROPROSE (Apple)

Crusade in Europe	25.75
Decision in Desert	25.75
F-15 Strike Eagle	21.75
Nato Commander	21.75

SSI (Apple)

Mech Brigade	36.75
Norway 1985	22.75
Market Garden	29.75
Six Gun Shootout	24.75
50 Mission Crush	24.75
Phantasia	24.75

Spinnaker

Alphabet	\$18.75
Story Machine	\$19.75
Kids on Keys	\$18.75
Grandma	\$19.75
Snooper Troop	\$22.75

MODEMS

HAYES

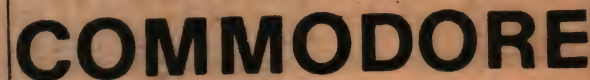
SMARTMODEM 300	139
SMARTMODEM 1200	379
SMARTMODEM 1200B	349
SMARTMODEM 2400	599
MICROMODEM IIE	135

TELE LEARNING

Total Telecommunications (C-64)	29.95
AP-250 (300 Baud Apple)	69.95
IB-250 (300 Baud IBM)	69.95

MICROBITS

1064 Modem	57
------------	----



COMMODORE

C-128 NEW	CALL
1571 Drive	CALL
1572 Drive	CALL
1902 Monitor	CALL
1670 Modem	CALL
C-64 Computer	CALL
1541 Drive	189
MPS801 Printer	LOW
1702 Monitor	199
Simon's Basic	24.75
Assembler 64	34.75
Super Expander	22.75
Logo 64	49.75
Pilot 64	38.75
Easy Calc	34.75
Easy Script	38.75

CARDCO

Digitizer Camera	189.95
32K Printer Buffer	59.95
Numeric Keypad	34.95
CB/5 5-slot Board(64)	54.00
CB/2 2-slot Board(64)	25.00
S'More Basic Rom	49.95
Write Now-64	35.00
Mail Now-64	29.00
Spell Now-64	29.00
File Now-64	29.00
Paint Now-64	29.00
Calc Now-64	29.00
Tax Survival	29.00
Super Printer Utility	27.95
Write Now-Vic-20	29.95

SPINNAKER (C-64ROM)

Cosmic Life ROM	19.75
Jukebox	19.75
Alphabet Zoo	17.75
All in Color Caves	19.75
Up for Grabs	19.75
Delta Drawing	19.75
Kids on Keys	16.75
Kindercomp	14.75
Facemaker	17.75
Fraction Fever	17.75

ANCHOR

Volksmodem	55
Volksmodem 12	186
Mark 12	229

NOVATION

IBM-300/1200 MS-DOS ext	319
IBM-300/1200 CPM-86 ext	319
IBM 300/1200/2400 ext	529
IBM 300/1200/2400 MS-DOS	579
IBM MS-DOS int	325
IBM CPM-86 int	325
Macromodem 300/1200	315
Macromodem 300/1200/2400	585
Apple Cat II	219
Upgrade Apple Cat II	225
Cal 300 Acoustic	139
J-Cat RS232	89

WESTRIDGE MODEM (C-64)	59
MITEY MO MODEM (C-64)	69
Compuserve	19.85

BATTERIES INCLUDED

Paper Clip	59.95
Spell Pak	34.95
Consultant	59.95
Paper Clip w/Spell Pak	75.95
Home Pak	34.95
Bus Card	129.95
80 Column Board	109.95

BRODERBUND

The Print Shop	28.75
Graphics Library	18.75
Graphics Library II	19.75
Graphics Library III	19.95
Karateka	19.75
Castles Dr. Creep	19.75
Bank St. Writer	32.75
Loderunner	20.75
Mask of the Sun	24.75
Spelunker	19.75
Serpent's Star	24.75
Whistler's Brother	18.75
Raid Bungeling Bay	18.75

HES

HES Games 84	22.95
Microsoft Multiplan	55.00
Type N Write	19.95
Turtle Graphics II	23.95
Cell Defense	22.95
Paint Brush	12.95
Tri Math	22.95
Graphics Basic	27.95
HES Kit	29.95
Millionaire	23.95
HES Writer 64	24.95

SCARBOROUGH (C-64)

Build A Book	24.75
Improved Mastertype	23.75
NET WORTH	48.75
Mastertype Filer	22.75
Boston 64 Diet	27.75

MICROPROSE (C-64)

Kennedy Approach	21.75
Crusade in Europe	24.75
Decision in Desert	24.75
Solo Flight	20.75
Nato Commander	20.75
Spitfire Ace	18.75
F-15 Strike Eagle	20.75
Hellcat Ace	18.75

PERSONAL PERIPHERALS

Super Sketch 64	32.75
Printer Utility	18.75

SUB LOGIC (C-64)

Flight Simulator II	32.75
Night Mission Pinball	20.75

QR & D

Copy Q	27.95
GPC Printer Interface	65.00

MONITORS

AMDEK

300 Green	118
300 Amber	128
310 Amber IBM	155
Color 300 Audio	234
Color 500 Composite	369
Color 600	397
Color 700	495
Color 710	569

TEKNIKA

MJ-10 Composite	179
MJ-22 RGB	255

NEC

JB-1260 Green	95
JB-1201 Green	135
JC 1215 Color	235
JC 1216 RGB	375
JC1460 Color	265
JB-1205 Amber	139

PRINCETON GRAPHICS

MAX-12 Amber	185
HX-12 RGB	465
SR-12 RGB	595

SAKATA

SG1000 12" Green	99
SA1000 12" Amber	109
SG1500 12" Green TTL	119
SA1500 12" Amber TTL	129
SC100 13" Color Comp	209
SC200 13" RGB	389

PANASONIC

DT 1300 RG1 composite	247
-----------------------	-----

ZENITH

ZVM 122A Amber	75
ZVM 123G Green	75
ZVM 124 Amber IBM	129
ZVM 131 Color	275
ZVM 133 RGB	389
ZVM 135 Composite	449
ZVM 136 Hi Res Color	589

X-TRON

Comcolor I Composite Green	177
----------------------------	-----

TAXAN

115 12" Green Composite	CALL
116 12" Amber Composite	CALL
121 12" Green TTL	135
122 12" Amber TTL	145
220 14" Color Composite	259
410 12" RGB Hi Res IBM	329
420 12" RGB Super Hi IBM	409
440 12" RGB Ultra Hi Res	555
Tilt Stand	35

AMERICA'S MAIL ORDER HEADQUARTERS
LYCO COMPUTER
 WORLD'S LEADER IN SALES & SERVICE

TO ORDER
 CALL TOLL FREE
800-233-8760
 In PA 1 717-327-1824
 Lyco Computer
 P.O. Box 5088
 Jersey Shore, PA 17740

Lycos Computer Marketing & Consultants



SG-10 \$212.00

AXIOM

GP550AT (Atari)	222
GP550CD (C-64)	222
GP700AT (Atari)	439
GP700AP (Apple)	439
ELITE5CD (C-64)	229

C. ITOH

8510Ap+	299
1550P	437
1550BP	437
1550EP	437
1550BCD	469
F10-40	859
F10-55	1039
7500AP	204
7500AR	244

TOSHIBA

P1340	557
P351	1286

SAVE ON THESE PRINTERS

CARDCO

32K BUFFER (C-64)	59
-------------------	----

CORONA

LP300 Laser Printer	2686
200361 Toner Cartridge	89

EPSON

FX85 (New)	333
LX80	212
FX185 (New)	464
LX90 (New)	226
SQ2000 (New)	1555
JX80	467
Homewriter 10	193
CR-20-Atari	153
CR-220-C-64	153
DX-10 (New)	207
DX-20 (New)	297
HS-80 (New)	288
LQ1500P	975
LQ1500S	1039
RX-100	356
FX-100+	CALL

CITIZEN

MSP-10	287
MSP-15	447
MSP-20	447
MSP-25	563
Sheetldr (10/20)	189
Sheetldr (15/25)	199

OKIDATA

Okimate 10	CALL
Okimate 20	CALL
182	214
192	348
193	563
92P	349
93P	565
84P	645
92 Imagewriter	349
*IBM versions also	

BROTHER

HR-15XL-P	359
HR-15XL-S	359
HR-35P	839
HR-35S	839
2024L-P	949
M1009-P	189

JUKI

Juki 6100	347
RS232 Serial Board	55
6100 Tractor	119
6100 Sheet Feeder	209
Juki 6300	757

LEGEND

880	196
1080	222
1380	262
1385	296

DIGITAL DEVICES

16K BUFFER	75
32K BUFFER	89
64K BUFFER	125

DIABLO

D25	549
630API	1599
630ECS	1759
D801F	2395
P32CQ1	699
P38	1749
C150	999



1091 \$233.00

PANASONIC

1091	233
1090	183
1092	373
1093	426
3151 Letter	426
4K Buffer	65

SILVER REED

EXP400	249
EXP500	295
EXP550	399
EXP770	749

STAR MICRONICS

SG-10	212
SG-15	373
SD-10	336
SD-15	442
SR-10	483
SR-15	583
Powertype	303
SB-10	CALL
SG-10C-64 (NEW)	CALL

★ PRINTER ★ INTERFACING

AXIOM

AT846 (Atari)	65
Parallax (C-64)	65

MICROBITS

MPP-1150 (Atari)	54
MPP-1150XL (Atari)	59
MicroPrint (Atari)	39
64K RAM Board (600xl)	65

DIGITAL DEVICES

ApeFace XLP (Atari)	49
ApeFace 12XLP (1200xl)	49
U-Print A (Atari)	54
U-Print C (C-64)	49
U-Print A16K Buffer	74
U-Print A64K Buffer	99
U-Print AP16K (Apple)	99
U-Print AP64K (Apple)	139
U-CALL RS232 (Atari)	37

MICROTEK

Dumpling GX (Apple)	59
Dumpling 16K (Apple)	89
RV-611C (Apple)	49

TYMAC

Connection (C-64)	55
Tackler (Apple)	49
PPC-100 (Apple)	39

ORANGE MICRO

GRAPPLER+ (Apple)	85
Grappier 16K (Apple)	149
ORANGE (Apple)	59
Grappier CD (C-64)	79

CARDCO

G-Wiz (C-64)	54
C/? + G (C-64)	45
C/?PS (C-64)	49
C/?B (C-64)	39
C/?AT (Atari)	49
C/?AP (Apple)	49
C/?IBM (IBM)	29

PRINTING PAPER

3000 SHEETS	
FANFOLD	\$42.75
1000 SHEETS	
FANFOLD	\$19.75
1000 SHEET LETTER	\$21.95
200 SHEETS LETTER	\$8.99
150 RAG STATIONARY	\$10.99
MAILING LABELS (1in.)	\$9.95
14 x 11 1000	
FANFOLD	\$24.75

WICO Joysticks

15-9714 Bat Handle	16.75
50-2030 Boss	11.99
50-2002 Super 3-Way	19.99
50-0110 IBM-Analog	29.95
50-1030 Apple-Analog	29.95
72-4545 Trackball	29.95

INNOVATIVE CONCEPTS

Flip-n-File 10	3.50
Flip-n-File 15	8.25
Flip-n-File 25 Lock	17.95
Flip-n-File 50	17.25
Flip-n-File 50 Lock	22.95
Flip-n-File Rom	17.25

DRIVES

INDUS

GT ATARI	199
GT COMMODORE	195

MSD

SD1 Drive (C-64)	229
SD2 Drive (C-64)	469

DISKETTES

SKC (Box 10)

(Qty)	10	100	500
5 1/4" SSDD	13.75	12.99	11.99
5 1/4" DSDD	15.75	14.99	14.25

ELEPHANT (Box 10)

5 1/4" SSDD	13.50	12.99	11.99
5 1/4" DSDD	14.99	13.99	12.99
5 1/4" DSDD	16.99	15.99	14.99
Premium SSDD	15.95	14.95	13.95
Premium DSDD	17.95	16.95	15.95

MAXELL (Box 10)

5 1/4" MD-1	16.75	15.75	14.75
5 1/4" MD-2	22.99	21.99	20.99

VERBATIM (DataLife) (Box 10)

5 1/4" SSDD	19.99	18.99	17.99
5 1/4" DSDD	24.99	23.99	22.99

NO LABEL DISKETTES

NL 5 1/4" SSDD	10.99 (Box 10)
NL 5 1/4" DSDD	15.99 (Box 10)
*Free Diskette Writer Pen!	
*Free Storage Case!	
*Lifetime Warranty!	

IBM-PC SOFT-WARE

*ASHTON-TATE

Framework	385.00
d Base II	289.00
d Base III	385.00
d Base II upgrade	135.00

PARADISE

Multi-Display Card	289
Modular Graphics Card	275
Five-Oak	155

*LOTUS

Lotus 1-2-3	309.00
Symphony	439.00

IBM-PC COMPATABLE

LEADING EDGE

PC Compatible Call

ZENITH

Z-150 Call

TECHMAR

First Mate-64K	249
Captain-64K	199
Second Mate	209
Captain JR-128K	309
Graphics Master	465

OMEGA

10 Meg Bernoulli Box (IBM)	1899
5 Meg Bernoulli Box (MAC)	1499

TALLGRASS TECHNOLOGIES

25mb drive	CALL
35mb drive	CALL
50mb drive	CALL
80mb drive	CALL

AST

Six Pack Plus 64K	CALL
Mega Plus II 64K	269
Memory 128K (Mega)	199
Memory 256K (Mega)	335
Mono-Graph Plus	339
Advantage-AT-128K	389

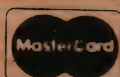
*QUADRAM

Quad Jr. Exp. Chassis	519.00
Quad Jr. Exp. Memory	209.00
Quad Memory Jr.	209.00

*LEADING EDGE

Nutshell	69.95
LEWP Basic	65.00
LEWP Merge Print	99.00
LE Spell Correction	169.00

TOLL FREE 1-800-233-8760



TO ORDER

CALL TOLL FREE

800-233-8760

Customer Service 1-717-327-1825

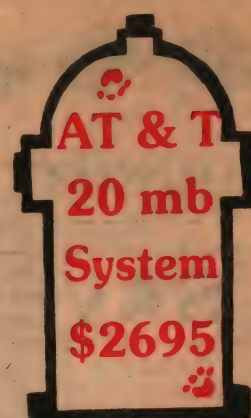


or send order to
Lycos Computer
P.O. Box 5088
Jersey Shore, PA
17740

RISK FREE POLICY

In-stock items shipped within 24 hours of order. No deposit on C.O.D. orders. Free shipping on prepaid cash orders within the continental U.S. Volume discounts available. PA residents add sales tax. APO, FPO, and international orders add \$5.00 plus 3% for priority mail service. Advertised prices show 4% discount for cash, add 4% for MasterCard or Visa. Personal checks require 4 weeks' clearance before shipping. Ask about UPS Blue and Red label shipping. All merchandise carried under manufacturer's warranty. Free catalog with order. All items subject to change without notice.

Fire Hydrant Specials



BEST IBM PRICES SINCE BULLDOG WAS A PUP!

IBM PC SYSTEMS

IBM PC 256K 2 360K Drives.....**\$1639**

IBM PC 256K 2 360K Drives
 Monochrome Monitor, Monochrome Card/Printer Adaptor **1925**

IBM PC 256K 2 360K Drives
 Color Monitor, Hercules Color Card/Printer Adaptor **2125**

With 10 mb Hard Drive add **\$549**

With 20 mb Hard Drive add **\$699**

IBM XT 256K

360K drive, 10 mb hard drive, Monochrome Card, Monochrome Monitor **2695**

IBM XT 256K

360K drive, 10 mb hard drive..... **2395**

IBM XT 256K

360K drive, 20 mb hard drive..... **2495**

IBM AT SYSTEMS

IBM AT Basic **3050**

IBM AT Enhanced **3995**

Our technicians configure and test all systems before shipping to you.

MONITORS

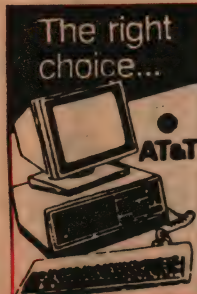
TAXAN	AMDEK	PRINCETON
121G 139	300G 129	MAX12 129
425 399	300A 139	HX12 459
420 389	310A 159	IBM mono 245
	Color 600 419	IBM color 545

SOFTWARE

BANK STREET WRITER.....	\$53
CROSSTALK.....	109
COMPUSERVE STARTER KIT.....	25
R BASE 500.....	379
TURBO PASCAL 3-0.....	43
SUPERKEY.....	45
IBM DISPLAY WRITE III.....	269
WORDSTAR 2000.....	249
WORDSTAR 2000+.....	299
WORD PERFECT 4.0.....	239
MICROSOFT WORD.....	239
VOLKSWRITER DELUXE.....	159
LOTUS 1 2 3.....	299
SYMPHONY.....	429
D BASE II.....	279
D BASE III.....	369
FRAMEWORK.....	369
FANCY FONTS.....	135
COPY II PC.....	35
REVELATION.....	575
JET.....	39
FLIGHT SIMULATOR.....	39
MULTIMATE.....	279

HARDDRIVES

10 mb w/controller.....	\$519
20 mb w/controller.....	599
IOMEGA BERNOULLI	
10 mb.....	1875
20 mb.....	2495



The right choice...

America is making the right choice by switching to the **AT & T 6300PC**. Now you can get all the features and speed you need at the right price. All A T & T Systems include Keyboard, Bit Image Graphics, Green Monitor, 256K, DOS, and On-Board Clock Calendar.

2 Drive System..... **\$1995**

10-mb System..... **2595**

20 mb System..... **2695**

Call Toll Free 1-800-438-6039 or 1-800-368-7689
 IN GEORGIA 1-404-860-7364 or 1-404-868-5081

Now Also

3833-A Washington Road
 Martinez, Georgia 30907

Norcross, GA 30071
 (404) 448-1251

Bulldog Computer Products

Incorporated as Georgia Micro

SHIPPING

- Add 3% Shipping & Insurance
- We Ship UPS
- We accept VISA, MasterCard, American Express and C.O.D.'s
- GA residents add 4% Sale Tax



**When You Need It Bad—
We've Got It Good!**

DRIVES & TAPES

360K B Floppy for AT (w/color coordinated face plate)	\$139
TANDOM TM 100-2	109
CDC 9409	109
TEAC 55 B	89
SHUGART SA 455	85
10 MB Tape Back Up	
Internal	495
External	595

MODEMS

HAYES 300	\$159
HAYES 1200	389
HAYES 1200 B	339
comes w/Smart Com	
HAYES 2400	639
SIGNALMAN MARK XII	239
VENTEL HALF CARD	369
VENTEL 1200 PLUS	349

GRAPHICS CARDS

STB MONOCHROME	\$159
STB CHAUFFUER	259
STB GRAPHICS PLUS II	249
EVEREX GRAPHICS EDGE	349
EVEREX EDGE	329
SIGMA COLOR 400	499
HERCULES GRAPHICS	289
HERCULES COLOR	149

MULTI FUNCTION BOARDS

AST 6 PACK w/64K	\$229
QUADBOARD w/o K	179
PARADISE 5 PACK w/o K	169
PC TURBO 86 w/128K	635
ADVANTAGE w/128K	365
EVEREX MAGICARD II w/256K	179

AND ALSO...

RACCORE DRIVE II for PC Jr.	\$449
KENSINGTON MASTERPIECE PLUS	129
KENSINGTON MASTERPIECE	99
COMPUTER ACCESSORIES P 2	99
WIRE TREE By NETWORKX	59
WIRE TREE PLUS	89

PRINTERS

EPSON

LX 80	\$229
FX 85	349
FX 185	459
LQ 1500	849
Interface for 1500	75
RX 100	359
JX 80	459

OKIDATA

182	229
83 A	529
192 P	349
84 P	649
193	499
2410	1729

TOSHIBA

1340	555
351	1069

NEC

P 2	549
P 3	759
2050	669
8850	1475
3550	1025

COMREX

CR220 II for Commodore no interface needed	119
CR 420	1495
CR II	349

BROTHER

DX 15	399
HR 25	529
HR 35	879

One call does it all

1-800-438-6039



Bulldog Computer Products

Incorporated in Georgia Micro

Guenther Computer Products, Inc.

473 Sapena Ct. #3
Santa Clara, CA 95054

Peripheral Distributors
Nan & Don & Steve

408-988-5445

16K RAM Chips
\$.50/ea.
64K RAM Chips 9/3
128K RAM Chips
\$5/ea.
256K RAM Chips
\$4/ea.

DISK HOLDER
holds 50
\$11.50

★ **\$ \$ \$ \$ SPECIALS** ★

We'll Save You More Than 3%

No Charge Cards Accepted
All Products Have 90 Day Replacement Warranty

Ile-Type Extended
80 Column Card
w/64K
\$65⁰⁰

AST 6 PACK +
\$245⁰⁰

Apple Compatible Disk Drives

SHUGART \$125.00

* Cased, Cabled Color Co-ordinated to the Apple & Ready to Plug-in.

APPLE IIC COMPATIBLE \$119.00

We cannot say enough about this drive. It is 100% compatible and the warranty cannot be beat.

1/2 HEIGHT APPLE COMPATIBLE \$119.00

* 1/2 height drive—also 100% Apple Compatible.

SUPER 5 \$129.00

* 1/2 height direct drive. Teac mechanism.

MACINTOSH DRIVE external \$249.00

APPLE TYPE CARDS

Printmax	\$45.00
Disk Controller Cards	\$39.00
Parallel Interface Cards	\$39.00
16K RAM Cards	\$34.95
Smart Term II	\$109.00

Plug In Strips w/Surge Protection
\$11.50

Apple Compatible Joysticks \$15.00

Vertical & Horizontal Control

While
They
Last

10 MEG HARD DRIVE
For IBM With Controller
\$549.00

IBM Printer Cable 6ft. long
shielded/grounded **\$15.00**

DISKETTES

DSDD box of 10	\$14.00
SSDD box of 10	\$12.00

* Full lifetime warranty. Double sided double density—hubbrings and labels, 100% certified.

MODEMS 300 BAUD

Auto-Answer/Auto-Dial with software

APPLE COMPATIBLE
\$95.00

IBM COMPATIBLE
\$95.00

IBM Compatible Drives

TANDON TM 100-2 \$109.00

* 90 day replacement warranty double sided double density.

TEAC 55B \$89.00

* 1/2 height DSDD

SHUGART SA 455-2 \$89.00

* 1/2 height DSDD or Panasonic.

TEAC 55F \$125.00

Please Include 3% Shipping Charges!!

Minimum \$2.00 Shipping Charge. COD Orders Add \$2.00

For Orders Only Call 800-621-0854 Ext. 248

EMCO**FREE PEN WATCH FOR
ORDERS OVER \$50.00****(805) 499-6871****FACTORY GUARANTEED QUALITY****DETACHED KEYBOARD****\$95.00**

- Apple-Franklin compatible
- Programmer keyboard
- Enhance over 40% of keyboard functions
- Microprocessor control with Upper/Lower case
- 42 function keys
- 3 user-programmable keys
- Standard numeric key pad
- Power "ON" light
- Curly-cord connector and connector mate included

S & H \$5.00

5 1/4" DISKETTES**\$1.00**

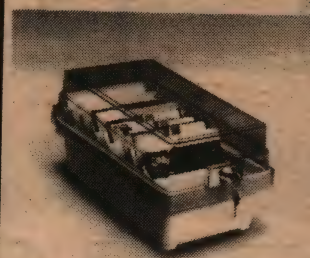
SS/DD G-Neric diskettes
w/hub rings, sleeves & write
protect tab (pkg. of 20)

\$20

FREE DISK DOUBLER
with purchase of 100 pcs Diskettes

S & H \$3.00

(Note: \$3.00 Shipping & Handling required on all diskette orders)

FLIP 'N' SORT**\$12.95**

- Elegant appearance
- Key lock for file integrity
- Smoke top w/beige base
- Protect up to 100 5 1/4" diskettes
- Ten movable dividers
- Non-slip guides keep disks upright and flat

DX-85A

S & H \$4.50

**ADJUSTABLE
MONITOR STAND****\$12.95**

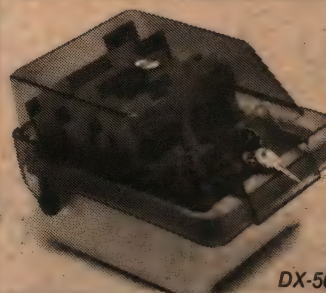
- Tilts and swivels display
- Rotates 360°
- Tilt-angle adjustable and lockable
- Rubber pads on top and bottom guarantee no slipping
- Holds all size monitors

S & H \$4.50

JOY STICKS**\$17.95**HAND
HELDDESK
TOP

- Apple II + , IIe, IIc, or IBM pc compatible
- Self-centering w/metal handle
- Adjustable verticle and horizontal
- Hand-held model with AutoFire
- Please specify II + , IIe, IIc or IBM pc on order

S & H \$4.00

FLIP 'N' CARRY**\$11.95**

- Built-in carrying handle
- Elegant appearance
- Key lock for file integrity
- Smoke top w/white base
- Protect up to 50 5 1/4" diskettes
- Four movable dividers
- Non-slip guides keep disks upright and flat
- 6 1/2"H, 8 3/4"L, 7"W

DX-50A

S & H \$4.50

APPLE COMPATIBLE

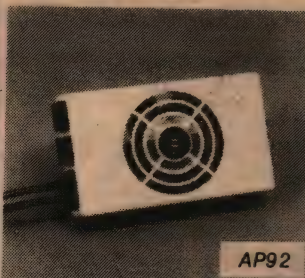
- 16K RAM Card - II & II/ + upgrade to 64K . . . \$35
- Z-80 CP/M Card - II, II/ + & II/E . . . \$35
- 80 Column Card - Soft switch with inverse video chip for II/ + . . . \$60
- Extended 80 Column with 64K RAM - II/E . . . \$60
- Disk Controller Card - II/ + & II/E for dual drives . \$35
- Printer Card with Cable - Centronics Parallel; II/ + & II/E . . . \$35

S & H \$4.00

DISK DOUBLER**\$6.95**

- Accurate position guide
- Hand-held compact design
- Square notch-cut
- Sturdy, all-metal construction

S & H \$4.00

COOLING FAN**\$29.95**

- New super-thin design
- Adjustable: fits all cases
- Dual outlets for monitor and printer
- Heavy duty switch w/power on pilot light
- Built-in power surge protection
- Also fits Commodore model 1541 drive

AP92

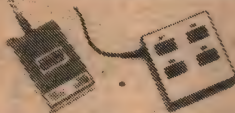
S & H \$4.00

RF MODULATOR SET

S & H \$4.00

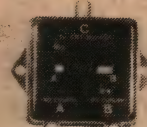
\$9.95

- RF Modulator
- TV Interface
- Coaxial Cable

EXTERNAL PORTONE PORT **\$4.95**FOUR PORT **\$12.95**

- Apple II + I/O extender
- Easy access to I/O
- One-port or four-port available
- Control by individual switch

S & H \$4.00

VIDEO 'FLIPPER'**\$9.95**

- Easily flips from 40 to 80 column mode and back
- One computer to two monitors connection and select
- Two computers to one monitor connection and select

S & H \$4.50

ANTI-GLARE PANEL**\$29.95**

- Fit 12" to 14" Video Display Terminals
- Reduce Glare from VDTs on color and monochrome screens
- Enhance the contrast between image and background
- Easy mounting

S & H \$4.00

FLOPPY DISK DRIVE**\$145****HALF-HEIGHT**

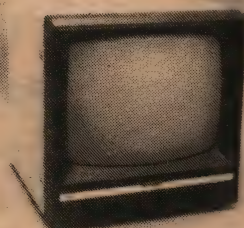
S & H \$6.00

- Apple compatible 5 1/4"
- 250 KB disk capacity (unformatted)
- High-speed (6 ms) access time
- 149 x 45 x 230 mm
- Made in Japan

A B SWITCH**\$69.95**

- Two position push button Centronics-style switch
- Parallel transmission
- Beige color to match your PC
- Perfect for connecting two printers to one computer or connect two computers to one printer with parallel interface
- Size: 1 1/4" h x 7 1/4" w x 5" d

S & H \$5.00

MONITORS**\$100****AMBER :**

- Amber HI-RES monitor
- 12" display
- Non-glare screen finish
- 20 MHz
- 1000 lines @ center

\$225**COLOR :**

- Color/Green selectable
- 14" display
- Audio/video input
- Audio/video output
- Volume control

S & H \$13.00

APPLE™ COMPATIBLE**\$199.00**

CK 199

INCLUDES (as shown):

- **CASE:** ABS case in light beige, w/spacer for easy motherboard mounting.
- **KEYBOARD:** Same features as KB-95 (above) exc. assembled in case for easy mother BD connection.
- **SWITCHING P.S.:** 110/220 select: 5V/5A, 12V/2.5A, -12V/5A, -5V/5A; in case w/power cord and connector.
- **RF MOD. SET:** RF modulator, coaxial cable, TV interface.
- **SPEAKER:** Mounted w/cable and plug.

S & H \$12.00

• WANTED • DEALERS • DISTRIBUTORS •

EMCO (805) 499-6871

3541 OLD CONEJO ROAD, SUITE 111
NEWBURY PARK, CA 91320

PRICES AND AVAILABILITY SUBJECT TO CHANGE WITHOUT NOTICE



**VISA
MASTERCARD
ACCEPTED**



Please add on 4%
for VISA or MasterCard
orders.

TERMS:

- Cashier's check or money order only
- **FREE S & H charges for prepaid orders**
- C.O.D. orders please add on S & H charges
- California residents please add 6% sales tax
- 10% restocking charge for orders returned or refused
- Extra S & H charges for outside domestic U.S.A.

GUARANTEE: 90 days DELIVERY: UPS, stock to 4 weeks



FLAMINGO

M I C R O

America's leading discounter
of micro computers and their associated hard- and software.



OUR PRICES ARE AT THE ABSOLUTE BOTTOM

FEAST YOUR
I/O's
ON THESE!



Call Toll Free 1-800-231-1214
In Florida 904-837-3995

IBM® hardware available upon request call for current pricing.

Lotus® 123 software \$299

Practical Multifunction Card™—Hayes™—compatible 300 baud modem with auto-dial, re-dial, and auto-answer capabilities, convenient user-generated phone directory, enhanced result code set with connection, no-connection, dial-tone, ringing, and busy indicators, connection to either of two on-board serial ports, O-K to 512K of RAM using 64K or 256K DRAM devices, 384K of available DOS-addressable expansion RAM, three IBM-compatible output ports—two serial, one parallel, clock/calendar with battery back. 64K \$300 512K \$400

ComBase by Rubbermaid®—adjustable computer work station. \$435

Hewlett-Packard® LaserJet printer—128K bytes, 59K memory available to user. 2 built-in fonts, 18 font cartridges with fonts up to 14 points, and serial interface. \$2300

Hewlett-Packard® LaserJet Plus printer—512K bytes, 395K memory available to user, accepts fonts up to 30 points from a PC, accepts forms created on PC, overlay capabilities, up to 32 forms can be stored in printers memory, RS-232C serial interface, and parallel interface. \$3100

Monochrome adapter card \$100
Parallel card \$30
Serial card \$50
512K RAM card \$150

Hard disk, 10 megabyte sub-system \$450
Hard disk, 20 megabyte sub-system \$550
Color graphic adapter card with parallel port \$130
Monochrome graphic adapter card \$130
Floppy drives \$70 and up
External or internal 300/1200 baud, Hayes™ compatible modem \$189
Floppy drive controller \$60
Game port \$45
R.S. 232C port \$55
Parallel printer card \$45
Telex card \$190
Keytronic 5151 compatible keyboard \$135
IBM-style keyboard \$85
Network cards \$375
Basic Time® color monitor \$350
Basic Time® monochrome monitor \$130



Prices subject to change without notice.

We accept Visa & Mastercharge

Write for catalogue: P.O. Box 1491 Destin, Florida 32541-1491

Above prices represent
a 2% CASH discount



HARMONY VIDEO & COMPUTERS

2357 CONEY ISLAND AVE., BROOKLYN, NY 11223

800-VIDEO84 OR 800-441-1144 OR 718-627-1000



IBM PC 256K

\$1329.95

STAR SG10

\$201.95

PANASONIC 1091

\$221.95

APPLE 2E w/DRIVE

\$780.00

"PRINTER SPECIALS"

Brother HR15 XL	307	NEC 2050	593	Powertype	275
Brother HR 35	619	NEC 3550	894	Gemini 10X	159
Citizen MSP 10	248	NEC 8850	1317	Star SG10	202
Corona Laser	2387	NEC p3	449	Star SG 15	336
Daisywriter	718	Okidata 192	323	Star SD 10	306
Epson LX80	213	Okidat 193	484	Star SD 15	400
Epson JX80	467	Okidata 182	219	Star SR 10	435
Epson LQ 1500	837	Okimate 10	118	Star SR 15	543
FX 185	462	Olympai ro	250	Star SB 10	492
FX 85	334	Panasonic KXP 1091	222	Silver Reed Exp 550	354
HP Laser Jet	2652	Panasonic KXP 1090	163	Silver Reed Exp 500	231
Juki 6100	335	Panasonic KXP 1092	327	Silver Reed Exp 770	593
Mannesman Spirit 100	183	Panasonic KXP 1093	403	Toshiba 1340	515
		Panasonic KXP 3151	379	Toshiba 351	985

WOW!WOW!WOW!

APPLE

2E w/Disk Drive	780
Apple 2C	863
Imagewriter	424
Addl. Drives	from 104

ATARI

130 XE	127
800 XL	75
1027 Printer	159
1050 Drive	129
Indus. Drive	200

MODEMS

Hayes 1200 w/Smartcom	343
Hayes 1200B w/Smartcom	326
Hayes 300	120
Hayes 2400	562
Micromodem 2E	125
Novation J-cat	79
Promethous 1200	284

SANYO

555 D.S.	674
MBC 775	1574

IBM

AT Enhanced	3921
AT Unenhanced	2860
IBM Monitor	208
IBM PC 64K	1354
PC XT	1680
PC XT Clone	1099
IBM Drive	146
AST Six Pack	193
Tall Grass 25 Meg	2392
Quad Board	172
Keytronics	115
Hercules Color	136
Hercules Monochrome	282
Mitsuba Monochrome	169
Paradise Graphics	239
Paradise 5 Pack	129
STB Graphics + 2	187
STB R10 + 2	166
STB Mono Board	135
Tecmar Graphics	427
Tecmar Captian	148
Persyst Monocard	133
Bernouli Box	1622

80287 Chip	180
AST Advantages	354
Everex Edge	260
Everex Magic	164

MONITORS

Amdek 300 Green	105
Amdek 300 Amber	109
310 Amber	129
Color 300	169
Color 500	270
Color 600	371
Color 700	385
Color 710	427
Princeton HX12	390
Princeton Max 12	142
SR 12	536
Taxan 122A	125
Taxan 220	219
Taxan 420	474

COMMODORE

Commodore 64	140
1451 Disk Drive	161
1702 Monitor	161
MPS 803	95
Indus. Drive	201
Card co. Interface	32

Price and availability subject to change without notice.
Prices shown do not include delivery charges.

800-441-1144

Items reflect cash discount. For your protection we check for stolen credit cards.
M.C. / VISA welcome. Personal checks cause 4 week delay.

THE WORLD'S LARGEST COMPUTER MAIL ORDER FIRM

#H31

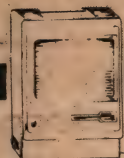
DEALERS
WE BUY
EXCESS
INVENTORIES

CONROY

TELEX 910 380 3980

ALL MAIL: 12060 SW Garden Place, Portland, OR 97223

FOR YOUR APPLE



MACINTOSH

	LIST PRICE	CONROY PRICE
AEGIS, Challenger or Pyramid, ea.	\$ 50	\$ 33
ASSIMILATION, Numeric Turbo	\$ 149	\$ 109
Mac Port Adaptor	\$ 79	\$ 59
BLUECHIP, Millionaire, Barron, Tycoon, ea.	\$ 60	\$ 38
BORLAND, Sidekick (copiable)	\$ 85	\$ 45
CENTRAL POINT, Copy II Mac	\$ 40	\$ 22
CONROY-LA POINTE, Diskettes	SEE BELOW	
CONTINENTAL, Home Accountant	\$ 100	\$ 65
CREIGHTON, Home Pak or Mac Office, ea.	\$ 39	\$ 26
Mac Spell +	\$ 99	\$ 61
DOW JONES, Market Manager Plus	\$ 249	\$ 159
EXPERTELLIGENCE, ExperLogo	\$ 150	\$ 95
FIRST BYTE, Smooth Talker	\$ 100	\$ 63
FORETHOUGHT, Fact Finder	\$ 150	\$ 95
HABA, Ext. Disk Drive, 400K	\$ 449	\$ 339
DS/DD Ext. Drive, 800K	\$ 599	\$ 489
HAYDEN, Sargon III	\$ 50	\$ 31
HIPPOTAMUS, Hippo C, Level I	\$ 150	\$ 99
HUMAN EDGE, Mind Prober	\$ 50	\$ 29
INFOCOM, Hitchhiker's Guide	\$ 40	\$ 25
KOALA, Mac Vision	\$ 400	\$ 229
LIVING VIDEOTEXT, Think Tank	\$ 145	\$ 92
LOTUS, Jazz	\$ 595	\$ 389
MANHATTAN, ReadySetGo	\$ 125	\$ 69
MEGAHAUS, Megaform	\$ 295	\$ 189
MICROSOFT, Business Pak	\$ 595	\$ 395
Excel	\$ 395	\$ 259
Multiplan, Word, or File, each	\$ 195	\$ 125
MILES, Mac the Knife, v. 1	\$ 39	\$ 25
MONOGRAM, Dollars & Sense	\$ 150	\$ 89
NOVATION, Smartcat Plus Modem w/Software	\$ 499	\$ 349
ODESTA, Helix	\$ 395	\$ 249
PROVUE, Overvue	\$ 295	\$ 185
SIMON & SCHUSTER, Typing Tutor III	\$ 60	\$ 37
SOFTWARE ARTS, T/K Solver	\$ 249	\$ 159
STFW. PUBL., PFS: File & Report Combo	\$ 175	\$ 105
STATE OF THE ART, Electronic Checkbook	\$ 80	\$ 50
STONEWARE, DB Master	\$ 195	\$ 125
TELOS, File Vision	\$ 195	\$ 119
VIDEX, MacCalendar	\$ 89	\$ 49
WARNER, Desk Organizer	\$ 149	\$ 99

COMPUTERS

Ile, Iic, Mac IN STOCK, CALL

FLOPPY DISK DRIVES

	LIST PRICE	CONROY PRICE
MICRO-SCI, A2 Disk Drive, 143K	\$ 269	\$ 159
A2 Controller Card	\$ 100	\$ 59
Half Height Drive for II+/Ile	\$ 269	\$ 159
Half Height Drive for Iic	\$ 299	\$ 169
TEAC, T40 Half Ht, 163K, Direct	\$ 249	\$ 149
Controller Card for T40 by ComX	\$ 79	\$ 45

HARD DISKS

IOMEGA, 5 meg Bernoulli Box f/Mac	\$1995	\$1595
QUARK, QC10 for Iic/Ile/II/MAC	\$1995	\$1095

OTHER HARDWARE

APPLE, Mouse for Ile	\$ 150	CALL
CCS, 7711 or 7710-A Interface, ea.	\$ 115	\$ 95
CPS/EASTSIDE, Wild Card II (copier, +/e)	\$ 140	\$ 79
COMX, 16K RAM Card (II+), 1 yr ltd wty	\$ 119	\$ 39
HAYES, Mach II, III Joysticks (II+/Ile)	CALL	
KENSINGTON, System Saver Fan	\$ 90	\$ 65
KEY TRONIC, KB200 Keyboard (+)	\$ 298	\$ 179
KOALA, Muppet Keys	\$ 80	\$ 44
Touch Tablet w/Micro Illustrator (+/e)	\$ 130	\$ 75
KRAFT, Joystick (Ile/Iic)	\$ 50	\$ 25
MICRO-SCI, 80 Col. Card + 64K RAM Card (Ile)	\$ 179	\$ 89
MICROSOFT, Premium Softcard (Ile)	\$ 395	\$ 275
Z80 Softcard II, 64K	\$ 425	\$ 295
ORANGE MICRO, Buffered Grappler Plus, 16K	\$ 209	\$ 145
16K Buffer Board for Grappler Plus	\$ 99	\$ 59
Hot Link, S-P cable for Iic	\$ 70	\$ 44
TITAN, Accelerator Ile	\$ 319	\$ 229
128K RAM Card (II+)	\$ 329	\$ 149
TRACKHOUSE, Numeric Key Pad (Ile)	\$ 100	\$ 79
VIDEO 7, V Color 7 RGB Card	\$ 150	\$ 129
V Color Iic	\$ 130	\$ 89
V Color Ile	\$ 250	\$ 169
VIDEX, UltraTerm (II+/Ile)	\$ 299	\$ 189
VideoTerm 80 Col. Card (II+/Ile)	\$ 279	\$ 175
WICO, Smartcard (spec. II/Ile+/Ile)	\$ 199	\$ 159

BUSINESS SOFTWARE

	LIST PRICE	CONROY PRICE
ALS, Word or List Handler, ea.	\$ 80	\$ 36
Handler Pak (Word/List/Spell)	\$ 170	\$ 73
APPLE, Appletworks	\$ 250	\$ 225
ASHTON-TATE, dBase II (Req CP/M 80)	\$ 495	\$ 289
BPI, AR, AP, PR or INV, each	\$ 395	\$ 240
BRODERBUND, Print Shop	\$ 50	\$ 31
Print Shop & Refill	\$ 65	\$ 39
Bank St. Mailer or Filer, ea.	NEW \$ 70	\$ 45
Bank St. Writer or Speller, ea	\$ 70	\$ 45
Bank St. Combo (Writer & Speller)	\$ 140	\$ 85
DATA TRANS, Fontrix	\$ 95	\$ 63
DOW JONES, Market Manager	\$ 249	\$ 159
Market Analyzer	\$ 349	\$ 219
HOWARD SOFT, Tax Preparer '85	\$ 250	\$ 159
HUMAN EDGE, Sales or Mgmt Edge, ea.	\$ 250	\$ 139
LIVING VIDEOTEXT, Think Tank	\$ 145	\$ 89
MEGAHAUS, Megaworks	\$ 125	\$ 79
MICRO PRO, WordStar (req. CP/M)	\$ 350	\$ 189
WordStar w/ Starcard	\$ 495	\$ 265
WordStar Professional, 4 Pak	\$ 495	\$ 265
MailMerge, SpellStar, or StarIndex, ea	\$ 99	\$ 54
InfoStar and StarCard Combo	\$ 595	\$ 295
MICROSOFT, Multi-Plan (Ap DOS)	\$ 95	\$ 62
QUARK, Word Juggler & Lexicheck (Ile/Iic)	\$ 189	\$ 129
SENSIBLE, Sensible Speller	\$ 125	\$ 79
SIERRA/ON-LINE, Screen Writer II	\$ 130	\$ 89
SOFTWARE PUBL., PFS:File or Write, each	\$ 125	\$ 79
PFS:Graph or Report, each	\$ 125	\$ 79
PFS:Access	\$ 70	\$ 43
SPRINGBOARD, Newsroom	\$ 50	\$ 32
STONEWARE, DB Master, v. 4+	\$ 350	\$ 189

UTILITIES SOFTWARE

BEAGLE, GP/LE or Alpha Plot, ea	\$ 50	\$ 27
Pronto DOS, Disk Quick, Ap. Mech. or I.O. Silver, ea	\$ 30	\$ 19
Full line IN STOCK	CALL	
BORLAND, Turbo Pascal (req. CP/M)	\$ 70	\$ 36
Turbo Grafix Toolbox	\$ 55	\$ 30
CENTRAL POINT Copy II Plus (bit copier)	\$ 40	\$ 22

UTILITIES SOFTWARE

	LIST PRICE	CONROY PRICE
EPSON, Graphics Dump	\$ 15	\$ 7
FUNK, Sideways	\$ 60	\$ 37
HAYES, Terminal Prog. for Smartmodem	\$ 99	\$ 65
MICROSOFT, Full Line IN STOCK	CALL	
MICROSTUF, Crosstalk	\$ 195	\$ 109
OMEGA, Locksmith	\$ 100	\$ 73
PENGUIN, Complete Graphics System II	\$ 80	\$ 49
Graphics Magician	\$ 60	\$ 41
QUALITY, Bag of Tricks	\$ 40	\$ 29
UNITED SWI, ASCII Express-Pro DOS	\$ 130	\$ 82
UTILICO, Essential Data Duplicator III	\$ 80	\$ 49

HOME & EDUCATIONAL

BEAGLE BROS., Full Line IN STOCK	CALL	
BRODERBUND, Print Shop	\$ 50	\$ 29
CONTINENTAL, Home Accountant	\$ 75	\$ 43
KOALA, Full Line IN STOCK	CALL	
MICROSOFT, Typing Tutor II	\$ 25	\$ 17
MONOGRAM, Dollars & Sense (II+/Ile)	\$ 100	\$ 59
Dollars & Sense (Ile/Ile 128K)	\$ 120	\$ 69
Forecast	\$ 60	\$ 38
SCARBOROUGH, Mastertype	\$ 40	\$ 25
Build-A-Book	\$ 40	\$ 25
Your Personal Net Worth	\$ 80	\$ 50
SIERRA/ON-LINE, Homeward	\$ 70	\$ 45
SIMON & SCHUSTER, Typing Tutor III	\$ 50	\$ 33
PLUS: BARRONS, CBS, DAVIDSON, EDU-WARE, HARCOURT, LEARNING CO., TERRAPIN		

RECREATIONAL SOFTWARE

BLUECHIP, Millionaire or Barron, ea.	\$ 50	\$ 35
DATASOFT, Aztec or Zaxxon, each	\$ 40	\$ 27
ELECTRON, ARTS, Sky Fox & others, ea.	\$ 40	\$ 29
HAYDEN, Sargon III (Chess)	\$ 50	\$ 30
INFOCOM, Zork I, II, or III, ea	\$ 40	\$ 29
MICROPROSE, Strike Eagle	\$ 35	\$ 23
ORIGIN, Ultima III	\$ 60	\$ 39
PENGUIN, Transylvania	\$ 35	\$ 24
SPECTRUM HOLOBYTE, Gato (128K)	\$ 40	\$ 25
SPINNAKER, Full Line IN STOCK	CALL	
SUB LOGIC, Flight Simulator II	\$ 50	\$ 30
PLUS: BRODERBUND, DATAMOST, MUSE, SIR-TECH		

DISKETTES

★ CONROY-LAPOINTE™ DISKETTES ★
We guarantee these top quality products with our name.
5 YEAR LIMITED WARRANTY.

100 ea. SS/SD, (Apple, etc) 35 Trk, W/FLIP BOX	\$ 13
100 ea. SS/SD, (Apple, etc) 35 Trk	\$ 99
1000 ea. SS/SD, (Apple, etc) 35 Trk	\$ 669
10 ea. DS/DD, (IBM, H/P) 40 Trk, W/FLIP BOX	\$ 16
100 ea. DS/DD, (IBM, H/P) 40 Trk	\$ 119
1000 ea. DS/DD, (IBM, H/P) 40 Trk	\$ 799
10 ea. SS/DD, 3 1/2" (MAC, H/P), W/FLIP BOX	\$ 25
50 ea. SS/DD, 3 1/2" (MAC, H/P)	\$ 115
100 ea. SS/DD, 3 1/2" (MAC, H/P)	\$ 235

CONROY-LAPOINTE™ IBM PRE-FORMATTED

10 ea. DS/DD, 40 Trk W/FLIP BOX	\$ 20
100 ea. DS/DD, 40 Trk	\$ 149
1000 ea. DS/DD, 40 Trk	\$ 959

SINGLE-SIDED, DOUBLE DENSITY

	LIST PRICE	CONROY PRICE
CDC, 10 ea. SS/DD, 40 Trk (Apple, etc)	\$ 45	\$ 19
DYSAN, 10 ea. SS/DD, (Apple, etc.)	\$ 40	\$ 27
MAXELL, 10 ea. SS/DD, MD1 (Apple)	\$ 47	\$ 19
VERBATIM, 10 ea. SS/DD, MD515-01, (Apple)	\$ 49	\$ 17

DOUBLE-SIDED, DOUBLE DENSITY

CDC, 10 ea. DS/DD, 40 Trk (IBM, H/P)	\$ 59	\$ 23
DYSAN, 10 ea. DS/DD, (IBM, H/P)	\$ 69	\$ 35
MAXELL, 10 ea. DS/DD, MD2 (IBM)	\$ 65	\$ 21
VERBATIM, 10 ea. DS/DD, MD34 (IBM)	\$ 75	\$ 20

3 1/2" MICRO DISKETTES

MAXELL, 10 ea. SS/DD (MAC, H/P)	\$ 55	\$ 35
MEMOREX, 10 ea. SS/DD (MAC, H/P)	\$ 60	\$ 33
VERBATIM, 10 ea. SS/DD (MAC, H/P)	\$ 65	\$ 32

HIGH DENSITY DISKETTES FOR IBM-AT

MAXELL, 10 ea. DS/HD (IBM-AT)	\$ 75	\$ 49
MEMOREX, 10 ea. DS/HD (IBM-AT)	\$ 84	\$ 49

★ GENERIK DISKETTES ★

Top quality, w/jackets, no labels. Quantity discounts. 90 day "No hassle, money back guarantee."		
100 ea. SS/SD, 35 Track (Apple, etc)	\$ 75	
100 ea. DS/DD, 40 Track, (IBM, H/P)	\$ 79	

MODEMS

	LIST PRICE	CONROY PRICE
ANCHOR, Signalman Mark XII	\$ 399	\$ 269
HAYES, 2400 External Modem	\$ 899	\$ 619
Smartmodem 1200B (IBM)	\$ 549	\$ 379
Smartcom II Software (IBM or MAC)	\$ 149	\$ 107
Smartmodem 1200 (External)	\$ 599	\$ 419
Micromodem IIe w/Smartcom (AP)	\$ 199	\$ 139
Transet 1000 - 128K	\$ 399	\$ 309
NOVATION, Apple Cat II 300 Baud (AP)	\$ 389	\$ 219
2400 External	\$ 795	\$ 549
212 Apple Cat, 1200 Baud (AP)	\$ 595	\$ 409
SmartCat Plus w/software (MAC)	\$ 499	\$ 349
ACCESS 1-2-3 1200B Modem + Crosstalk (IBM)	\$ 595	\$ 369
PROMETHEUS, 1200 Standalone Modem	\$ 495	\$ 349
ProModem 1200 w/software (MAC)	\$ 549	\$ 399
ProModem 1200A (AP)	\$ 449	\$ 329
ProModem 300C (AP Iic)	\$ 199	\$ 149
ProModem 1200B (IBM)	\$ 399	\$ 289
VENTEL, PC Halfcard (IBM)	\$ 549	\$ 389

MONITORS

AMDEK, Color 300 - Comp/Audio	\$ 349	\$ 239
Color 500 - Comp/VCR/RGB/Audio	\$ 525	\$ 319
Color 600 - Hi Res/RGB/Audio	\$ 599	\$ 399
300A - 12" Amber/Comp	\$ 199	\$ 129
300G, 12" Green/Comp	\$ 179	\$ 119
310A, 12" Amber (IBM)	\$ 230	\$ 159
PRINCETON, HX-12 - Hi Res/RGB	\$ 795	\$ 445
HX-12e - Hi Res/RGB/for IBM-EGA	\$ 785	\$ 559
SR-12 - Hi Res/RGB	\$ 799	\$ 599
MAX-12 - Amber (IBM)	\$ 249	\$ 179
QUADRAM, Amberchrome, 12"	\$ 250	\$ 149
ZENITH, ZVM-1220 - 12" Amber/Comp	\$ 159	\$ 109
ZVM-1230 - 12" Green/Comp	\$ 159	\$ 109
ZVM-124 & ZVM-135	15-25% OFF	

CABLES

ARBO, IBM-PC to Modem Cable	\$ 31	\$ 19
ASTAR, RF Modulator for T.V. (Apple)	\$ 35	\$ 20
COMPUABLE, Mac/Hayes Smartmodem Cable	\$ 32	\$ 18
CURTIS, Monitor Extension Cable (IBM)	\$ 50	\$ 32
3'-9" Keyboard Extens. Cable (IBM)	\$ 40	\$ 26
RCA, Monitor Cable	\$ 15	\$ 9

PRINTERS

DOT MATRIX:

	LIST PRICE	CONROY PRICE
APPLE, Laserwriter	\$6995	\$6500
EPSON, FX85 - 160 cps DQ/32 cps NLQ/10"	\$ 499	\$ 389
FX185 - 160 cps DQ/32 cps NLQ/15"	\$ 699	\$ 539
LX80 - 100 cps DQ/16 cps NLQ	\$ 299	\$ 249
LQ1500 - 200 cps DQ/67 cps LQ	\$ 1295	\$ 995
HEWLETT-PACKARD, Laserjet	\$3495	CALL
Thinkjet - 150 cps Inkjet	\$ 495	CALL
OKIDATA, Okimate 20 - Color, Hi Res	\$ 268	CALL
182 - 120 cps/80 col	\$ 299	CALL
192 - 160 cps/80 col/para.	\$ 499	CALL
193 - 160 cps/132 col	\$ 699	CALL
93 - 160 cps/136 col/para.	\$ 799	CALL
2410 Pacemaker - 350 cps/para.	\$2895	CALL
PANASONIC, P1090 - 80 cps/10"	\$ 349	\$ 249
P1092 - 180 cps/10"	\$ 599	\$ 459
QUADRAM, Quadjet-Inkjet Color	\$ 895	\$ 395
STAR MICRO, SG10 - 120 cps DQ/30 cps NLQ	\$ 299	\$ 249
SD10 - 160 cps DQ, 40 cps NLQ	\$ 449	\$ 379
SR15 - 200 cps DQ, 50 cps NLQ, 16K	\$ 799	\$ 679
TEXAS INSTRUMENTS, 855 - 150 cps	\$ 995	\$ 795
TOSHIBA, 351 - 288 cps	\$1695	\$1195

LETTER-QUALITY:

JUKI, 6300 - 40cps/para.	\$ 895	\$ 699
6100 - 18 cps/para/3 pitch	\$ 599	\$ 409
Sheet Feeder for 6300 (single)	\$ 275	\$ 225
PANASONIC, P3151 - 22 cps/15 1/2"	\$ 659	\$ 425
TOSHIBA, Prop. spacing & hi-res graphics:		
1340 - 144 cps DQ & 54 cps LQ	\$ 799	\$ 619
Bi-direction Tractor Feed	\$ 195	\$ 175

PLOTTERS:

EPSON, 4 Pen Plotter	\$ 599	CALL
HEWLETT-PACKARD, 8 Pen Plotter	\$3900	CALL

PRINTER SUPPLIES:

CONROY LAPOINTE, Colored Paper Pack (250)	\$ 13	\$ 8
PAPER: White, Colored, Laser Cut, etc.	CALL	
RIBBONS, DAISYWHEELS	CALL	

PRINTER INTERFACES AND BUFFERS

	LIST PRICE	CONROY PRICE
ARBO, IBM-PC to Para Printer Cable	\$ 36	\$ 25
Switchbox, TS-0902	\$ 95	\$ 59
ASSIMILATION, Mac to Epson Conn I/F	\$ 89	\$ 69
Daisywheel Connection	\$ 99	\$ 80
EPSON, Parallel Interface for LQ1500	\$ 100	\$ 79
Serial Interface Board	\$ 130	\$ 110
OKIDATA, Plug 'n Play, Tractors, Okigraph	CALL	
ORANGE MICRO, Grappler Plus for Apple	\$ 145	\$ 95
Serial Grappler	\$ 119	\$ 79
Buffered Grappler Plus, 16K	\$ 209	\$ 145

-LA POINTESM INC.

#H31

© 1984, 1985 by Conroy-LaPointe, Inc. All Rights Reserved.

LOW PRICES TO PROFESSIONALS WHO KNOW WHAT THEY WANT AND KNOW HOW TO USE IT!

(TO ORDER, CALL (800) 547-1289)

FOR YOUR IBM-PC, XT, AT or JR



MAGNUMSM
PC/XT
\$995

640K, Two 360K Drives

Plus: MS-DOS 2.11, Parallel Port, 2 Serial Ports (RS 232C), Clock/Calendar, Floppy Drive & Tape Backup Controller, 5 slots, 135 Watt Power Supply, 8087 optional, Selectric PC/AT Style Keyboard.

w/1 Floppy & 10 meg Hard Drive **\$1595**

Please call for other configurations
Above prices do not include video card or monitor

IBM-PC
256K, 2 360K Disk Drives

COMPUTER SYSTEMS

	LIST	CONROY
AST, SixPak Plus, 64K	\$395	\$239
SixPak Plus, 256K, S/P/CC + S/W	\$695	\$259
SixPak Plus, 384K, S/P/CC + S/W	\$895	\$269
Preview Graphics Card w/para, 64K	\$399	\$289
Advantage Multit. Bd. for AT, 128K	\$595	\$445
I/O Plus II, S/P/CC	\$215	\$169
I/O Plus II, S/P/CC/G	\$265	\$225
Port Kits - ser, para, or game, ea.	\$50	\$35
CENTRAL POINT, PC Option Board	\$95	\$81
COMX, 130 Watt Power Supply	\$179	\$93
CURTIS, Command Center	\$180	\$119
EVEREX, The Edge, Color/Mono Bnd	\$399	\$309
HAUPPAGE (HCW), 8087 Chip	\$175	\$125
8087 Math Pak (Chip & softw.)	\$295	\$219
HAYES, Mach II Joystick	\$45	\$29
Mach III (PC or Jr.)	\$55	\$35
HERCULES, Color Card w/para.	\$245	\$159
Mono Graphics Card	\$499	\$309
Graphics Pak	\$744	\$449
KENSINGTON, Masterpiece™	\$140	\$92
Masterpiece Plus	\$180	\$137
KEY TRONIC, KB5151, Std. Keyboard	\$255	\$189
KB 5153 Keyboard w/Touch Tab	\$400	\$325
KOALA, Speed Key Software	\$100	\$63
Speed Key System (Tab w/ softw)	\$200	\$115
Koala Pad w/PC Design	\$150	\$85

OTHER HARDWARE

	LIST	CONROY
MAYNARD, SAND STAR SERIES IN STOCK		
Multifunction (6) Card	\$89	\$79
Memory Card no RAM	\$199	\$139
Floppy Cont. Card (accepts 3 modules)	\$265	\$195
Hard Disk I/F Module	\$495	\$359
Serial Port Module	\$95	\$79
Para or Clock Cal. Module, ea.	\$59	\$49
MICROSOFT, Mouse (for PC)	\$195	\$129
Serial Mouse	\$195	\$145
MOUSE SYSTEMS, PC Mouse & Paint	\$220	\$145
PARADISE, Modular Graphics Card	\$395	\$279
Parallel or Serial Port, ea.	\$95	\$66
256K Module w/clock	\$195	\$150
PERSYST, PC/Mono Board, w/para	\$250	\$159
PC/Color Graphics Board	\$244	\$176
QUADRAM, Quadboard, no RAM, to 384K	\$295	\$195
Quadboard 64K, to 384K, S/P/CC/G	\$395	\$239
Quadboard 256K, to 384K, S/P/CC	\$675	\$269
Quadboard, 384K (full), S/P/CC/G	\$795	\$279
Quadboard II, no RAM, to 256K	\$295	\$215
Quadboard II, 64K, to 256K, 2S/CC	\$395	\$265
Quadboard II, 256K, 2S/CC	\$595	\$395
Quad 512 + 64K w/serial port	\$325	\$245
Quadcolor I, board, 4 colors	\$295	\$175
Upgrade Quadcolor I to II kit	\$275	\$149
Quadnet VI	\$1995	\$1045
Quadlink	\$495	\$375
Quadsprint	\$645	\$495
TALLTREE, J RAM II Board	\$219	\$159
JRAM III, 256K Board	\$399	\$319
TECMAR, Maestro, 128K to 3MB, S/P for AT	\$589	\$459
TITAN, 128K PC Accelerator	\$795	\$595
WICO, Smartboard Keyboard	\$400	\$279

OTHER HARDWARE

	LIST	CONROY
KEY TRONIC, KB5151 Jr. Keyboard	\$255	\$189
Numeric Keypad	\$100	\$77
KOALA, Touch Tablet for Jr.	\$125	\$75
MICROSOFT, Booster 128K w/Mouse	\$295	\$195
MOUSE SYSTEMS, Mouse w/software	\$220	\$138
QUADRAM, Expansion Chassis	\$695	\$540
Memory Expansion Board 128K	\$275	\$215
RACORE, Expansion Chassis	\$675	\$449
128K Expansion Board	\$275	\$189
TECMAR, Jr. Captain	\$395	\$309

MEMORY

256K CHIP KIT \$34

64K CHIP KIT \$6

128K CHIP KIT \$75

90 Day Warranty by us

CALL FOR QUANTITY PRICES

FLOPPY & HARD DRIVES

CDC, 360K DS/DD DISK DRIVE

Limited 30 day warranty
Call for quantity prices

Full Height **\$119**

Half Height **\$89**

CDC, Internal 20 meg kit FOR AT \$1695 \$1195

CORE INT'L, (39 msec. access time)

ATplus 20 meg kit FOR AT **\$1595 \$1195**

ATplus 30 meg kit FOR AT **\$2495 \$1875**

IRWIN, 10 meg tape backup system \$795 \$449

10 meg tape cartridges (by 3M) **\$25 \$19**

KAMERMAN, 10 meg kit w/controller \$895 \$579

20 meg kit w/controller **\$995 \$695**

Masterflight 10 meg w/tape **\$2295 \$1795**

SEAGATE, 10 meg w/controller \$745 \$459

20 meg w/controller **\$895 \$619**

TALLGRASS, 24 meg disk, 10 meg tape \$3495 \$2490

STOP WAITING

ALL ORDERS ARE NOW SHIPPED 2nd DAY AIR VIA

FEDERAL EXPRESS



Magnum EconoRAM Plus™

LIST **\$179**

384K Multifunction RAM Board

Works like AST SixPakPlus™ with game port

Fastrak™ RAM Disk and Spooler Software

S/P/CC/G, 1 Year Limited Warranty.

(Fastrak for up to 384K).

EconoRAM™ 384K Single Function Board

LIST **\$99**

With Fastrak™, Fully Compatible

Works on DOS 1.1, 2.0 or 2.1

Prices and availability subject to change. Call.

SOFTWARE FOR YOUR IBM-PC, XT, AT or JR

BUSINESS			BUSINESS			BUSINESS			UTILITIES		
	LIST	CONROY		LIST	CONROY		LIST	CONROY		LIST	CONROY
	PRICE	PRICE		PRICE	PRICE		PRICE	PRICE		PRICE	PRICE
ANALYTICA, Reflex	\$495	\$335	MICROPRO, WordStar (Jr)	\$195	\$109	SORCIM, SuperCalc III	\$395	\$229	MICROSOFT, Windows	\$95	\$63
ASHTON-TATE, Framework	\$695	\$379	WordStar 2000 (copiable)	\$495	\$265	Supervisor	\$295	\$195	MICROSTUF, Crosstalk XVI (PC or Jr)	\$195	\$110
dBase III	\$695	\$389	WordStar 2000 Plus (copiable)	\$595	\$295	SPRINGBOARD, Newsroom	\$50	\$37	MOUSE SYSTEMS, PC Paint	\$99	\$69
dBase II, (req. PC-DOS & 128K)	\$495	\$289	WordStar Professional, 4 Pak	\$495	\$265	THORN EM, Perfect Pak (Jr) (Write/Spell/Thesaurus)	\$139	\$89	NORTON, Utilities (14 prgms) v 3.0	\$100	\$56
ATI, PC DOS 2.1 Training	\$40	\$26	MICRORIM, R:Base Series 5000	\$695	\$385	UNISON, Print Master	\$60	\$38	POLYTRON, Polywindows (copiable)	\$85	\$45
BPI, General Acctg. AR, AP, or PR, ea.	\$595	\$365	Upgrade 4000 to 5000	\$245	\$135	WARNER, Desk Organizer (PC or Jr)	\$99	\$63	ROSESOFT, Prokey (New Version)	\$130	\$80
BRODERBUND, Bank St. Writer (PC or Jr)	\$80	\$51	R:Base 4000	\$495	\$259	XANARO, Ability	\$495	\$319	WESTERN UNION, Easy Link Mail Mngr	\$95	\$59
CDEX, Advanced Training for Lotus 1-2-3	\$70	\$45	R:Base Clout	\$249	\$133						
CONTINENTAL, Ultrafile	\$195	\$115	Extended Report Writer	\$150	\$92						
Tax Advantage	\$70	\$40	MICROSOFT, Multiplan (PC or Jr)	\$195	\$124						
Property Management	\$495	\$295	Chart or Project, each	\$250	\$159						
DATA TRANS., Fontrix	\$155	\$99	Word	\$375	\$239						
Font Packs, each	\$20	\$12	MOSAIC, Twin	\$145	\$75						
DOW JONES, Market Manager Plus	\$249	\$159	MULTIMATE, Multimate Ver. 3.3	\$495	\$229						
Market Analyzer	\$349	\$229	PALADIN, FlashCalc	\$129	\$86						
Spread Sheet Link	\$249	\$159	PEACHTREE, Back to Basics	\$395	\$239						
FOX & GELLER, Quickcode III	\$295	\$185	Peach Pak (GL/AR/AP)	\$395	\$219						
HARVARD, Total Project Manager	\$495	\$295	PRENTICE HALL, Inside the IBM, by P. Norton	\$22	\$17						
HOWARDSON, Tax Preparer '85	\$295	\$195	QUE, Using 1-2-3 (book)	\$18	\$14						
HUMAN EDGE, Mind Prober (PC or Jr.)	\$50	\$29	1-2-3 for Business (book)	\$17	\$13						
Sales Edge or Management Edge, ea.	\$250	\$139	Using Symphony (book)	\$20	\$15						
Negotiation Edge	\$295	\$165	SAMNA, Word Plus	\$695	\$349						
INFOCOM, Cornerstone	\$495	\$309	Word III	\$550	\$279						
LIFETREE, Volkswriter Deluxe	\$295	\$159	SATELLITE, WordPerfect (PC)	\$495	\$219						
LIVING VIDEOTEXT, Think Tank	\$195	\$109	WordPerfect (Jr)	\$69	\$46						
LOTUS, 1-2-3	\$495	\$309	SOFTW. ARTS, Spotlight	\$150	\$95						
Symphony	\$695	\$449	SOFTWARE GROUP, Enable	\$695	\$385						
MDBS, KnowledgeMan	\$500	\$275	SOFTWARE PUBL. PFS:Report	\$125	\$75						
MECA, Managing Your Money (PC)	\$199	\$105	PFS:Write, File or Graph, each	\$140	\$84						
MICROPRO, Easy	NEW \$150	\$99	PFS:Plan or Access, each	\$140	\$84						
WordStar (PC)	\$350	\$189	PFS:Proof	\$95	\$57						

CASH-n-CARRY COMPUTER STORES, INC.

Retail Sales only. Store prices may vary.

SAN FRANCISCO — 550 Washington Street (at Montgomery, opposite the Pyramid). Interstate 80 to Highway 480; take Washington Street Exit. CALL (415) 982-6212.

PORTLAND, OREGON — At Park 217, Tigard at intersection of Highways 217 and 99W. CALL (503) 620-5595.

SEATTLE, WASH. — NEW LOCATION! 1105 Bellevue Way N.E.. In Belgate Plaza, 2 blocks north of Bellevue Square. CALL (206) 641-4736.



OUR REFERENCES:

We have been in computers and electronics since 1958, a computer dealer since 1978 and in computer mail order since 1980. Banks: 1st Interstate Bank, (503) 643-4678. We belong to the Chamber of Commerce (503) 228-9411, and Direct Marketing Association; call Dun and Bradstreet if you are a subscriber. Recipient of OREGON BUSINESS MAGAZINE's 1984 Enterprise Award.



NO SALES TAX

CALL (800) 547-1289

In Oregon: (800) 451-5151 (503) 620-9877

QUESTIONS (503) 620-9878
6:00 AM - 5:00 PM (PDT)
Weekdays Only

ORDER DESK HOURS Mon-Fri 8am to 6pm (PDT)
Saturday 8am to 4pm (PDT)
(8 am here is 9 am in New York)

OTTO ELECTRONICS

895 RT 130
EAST WINDSOR, NJ 08520

8" DISK DRIVES

FDD100 8D
Single Sided Drive

125⁰⁰

FDD 200 8P
Double Sided Drive

185⁰⁰

DRIVES ARE FULL HEIGHT, AND GUARANTEED

8" DISK DRIVE SYSTEMS

INCLUDES: Enclosure, Fan, Power Supply, and Above Drives

SINGLE DRIVE SYSTEM

SINGLE SIDED \$395.00
DOUBLE SIDED \$495.00

DUAL DRIVE SYSTEM

SINGLE SIDED \$595.00
DOUBLE SIDED \$725.00

DATA CABLE FROM DRIVES TO HOST COMPUTER \$30.00

PAPER

9 1/2 x 11 - 6910LB(20) BLANK
20 LB CLEAN PERF 2700 SHTS/CTN **\$31.95**

14 7/8 X 11 - 6410 20LB
SPECIFY BLANK OR GREEN BAR
2400 SHTS/CTN **\$40.95**

PRICES DO NOT INCLUDE SHIPPING

SPECIAL!

256K DRAM 120 NSEC **\$3.25** ea.
150 NSEC **\$2.95** ea.

PLEASE CALL FOR CURRENT PRICING

* IF YOU NEED: IC's, Memory, Microprocessors, Conne- *
* tors, Custom Cables, Or Other Electronic Parts. CALL US! *
* Do You Require Printers, Monitors, Modems, or Other *
* Peripherals? CALL US! *

DISK DRIVES

5 1/4" QUME 142	40 TRK HALF HEIGHT DOUBLE SIDED BELT DRIVE	\$79.00
TEAC 55B	40 TRK HALF HEIGHT DOUBLE SIDED DIRECT DRIVE	\$99.00
TEAC 55F	80 TRK HALF HEIGHT DOUBLE SIDED DIRECT DRIVE	\$109.00

SOFTWARE ALLOWS 80TRK DRIVES TO RUN ON
IBM PC/XT + AT COMPUTERS **\$44.95**

HARD DISK DRIVES

10 MB HALF HEIGHT SA712	\$325.00
20 MBMITSUBISHI	\$550.00
TANDON (AVAILABLE IN 3.5" OR 5 1/4")	\$525.00
CMI	\$550.00
CONTROLLER CARDS + INTERNAL CABLES	
WD-W1002SH-WX2-2 DRIVES	\$175.00
DTC-5150-2 DRIVES	\$225.00
DTC-5290-FLOPPY + HARD DISK CONTROLLER	\$295.00

CASES

5 1/4" SINGLE FULL HEIGHT W/ POWER SUPPLY	\$44.00
VERTICAL TWO HALF HEIGHT W/ POWER SUPPLY	\$49.00
5 1/4" HOLDS 1 HALF HEIGHT HARD DISK DRIVE	
HORIZONTAL 3 1/2 x 6 x 12 W/ POWER SUPPLY + FAN	\$99.00

9 to 5
Mon. to Fri.

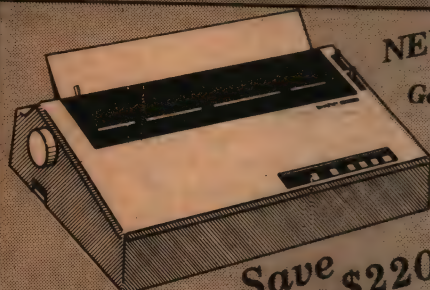
609-448-9165

MC, VISA, COD
PRICES DO NOT INCLUDE
SHIPPING

YOUR **brother** DAISYWHEEL PRINTER CONNECTION



Now you can get the great **brother** name, reputation and quality from the people you know and trust at **MidWest Micro-Peripherals**. Our vast experience in interfacing with practically every micro computer imaginable assures you of the best support possible. Our huge inventory of **brother** printers assures you of ready availability. Let our market leading aggressive pricing policy assure you of the very best in value with...



NEW

Get the affordable
daisywheel printer
alone in its class with...

**brother HR-15XL
DAISYWHEEL PRINTER**
Save \$220 ONLY \$379

Printout quality need not be sacrificed simply because of cost. Not only does the HR-15XL give you daisywheel printing at a price that's unbeatable, but added built-in attractions such as a 3k memory buffer (5k optional) for smoother printing and text reprinting to reproduce originals comes standard. Remarkable features such as two color printing and shadow printing gives your letters that added touch of importance. To increase the versatility of the HR-15XL, **brother** has an optional KB-50 Human Engineered typewriter keyboard to turn your HR-15XL into an electronic typewriter with automatic correction capability. Since the HR-15XL is a result of **brother's** advanced technology gained by long years of experience in the electronic office machine field it embodies such welcomed features as bi-directional 17cps printing, proportional spacing, automatic underlining, and super and sub script capability. Supplied either with Centronics parallel or RS-232C interface, the HR-15XL is compatible with most all small computers available on the market. Such options as the cut sheet feeder and tractor feeder offer further versatility to the HR-15XL — in a class way ahead of the rest.

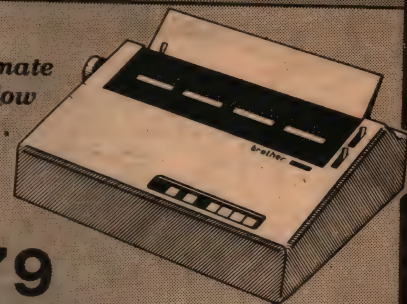
brother

NEW

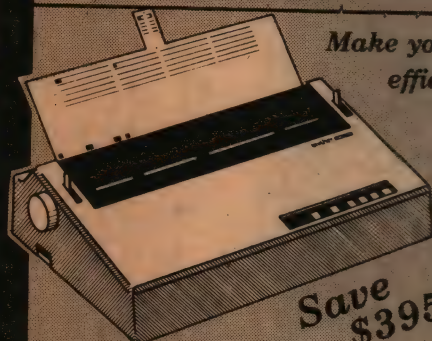
Get the ultimate
performance in a low
cost daisywheel printer with...

**brother HR-10
DAISYWHEEL PRINTER**

Save \$220 JUST \$279



The NEW **brother** HR-10 gives you superb quality and advanced technology from the company that has long years of experience in electronic office machines. The HR-10 is not only a high quality unit but a printer that will last with a snappy 120 word per minute print speed. It uses the renowned **brother** cassette daisywheels for ease in changing and the **brother** mess-less ribbon cassettes. And with the text reprinting feature you can set the HR-10 to continuously print out whatever is stored in the 2k memory buffer — all this at the touch of the front panel control. Control codes emulate Diablo 630 codes for universal compatibility with most software. Other standard, time-saving features include super and sub scripting, automatic underlining, and bold printing giving your printout a professional quality cleanliness. The HR-10 is capable of printing most 4 part forms and accepts a paper width up to 11 1/2 inches. This new addition to the **brother** HR series represents an outstanding value for a personal daisywheel printer.



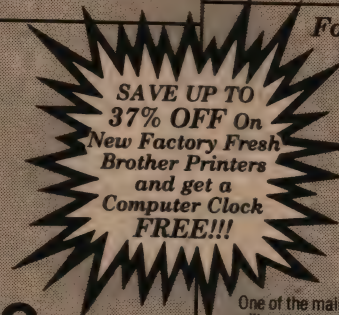
Make your office beautifully
efficient with...

**brother
HR-25
DAISYWHEEL
PRINTER**

Save \$395

ONLY \$499

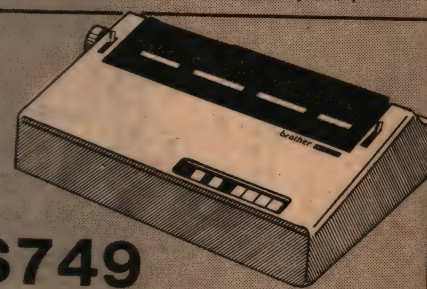
brother's HR-25 daisywheel printer has been specially engineered to keep pace with your high volume while producing clean, clear pages of the most beautiful letter quality. Since the HR-25 incorporates a 3k buffer and can print out bi-directionally at a rate of 23 cps, output will never lag behind demand. Once into the buffer, information will be held for repetitive printout with the text reprint function — originals can be produced without end. Previously if you desired to stress certain areas of a text you had to underline the area or type it in uppercase letters. The HR-25's bold type function and red color printout make those stress points literally jump off the page, an especially welcome feature for important reports and letters. Character pitch is selectable among the settings of 10, 12, and 15 positions per inch in addition to proportional spacing. Other features such as super and sub script, auto underlining, carriage skip movement, and easy drop-in ribbon cassettes and daisywheels put the HR-25 ahead of the competition. It is equipped with either a centronics parallel or an RS-232C serial interface and DIP switches conveniently located for easy access, the HR-25 is easily adapted to your computer system. With **brother's** renowned reliability and easy add-on accessories (cut sheet feeder, tractor feed) the HR-25 will increase your office efficiency to unexpected levels.



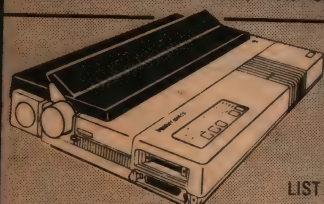
For the high output
office get the...

**brother
HR-35
DAISYWHEEL
PRINTER**

Save \$495 ONLY \$749



One of the main concerns in a high output office is putting out the work required without concern. **brother's** HR-35 will not only print out whatever is on your word processor's mind with the finest daisywheel beauty, but will print it out with a speed (32 cps) and accuracy that will keep your work moving in the right direction. Because the HR-35 incorporates a big 7k (23k optional) buffer memory, your computer will be free for other operations almost as soon as you give it the print command. And that buffer won't stay full for long, thanks to HR-35's 32 character per second print speed and bi-directional logic seeking carriage movement. But the HR-35 does not give up efficiency for speed. Since the printer head comes to a full stop at each strike zone, the high quality of the daisy wheel is taken full advantage of. HR-35 presents you with a host of other welcome features such as two color and bold printing, just the thing to make your text stand out. Extras include super and sub script function, auto underlining, proportional spacing, text reprinting, clear buffer and easy to use front panel control for all the main operations. HR-35's back panel allows either centronics parallel or RS-232C serial interface connection. DIP switches are easy to access and attachable options such as the tractor feeder and cut sheet feeder offer increased utility. And it goes without saying that the HR-35 uses exclusive **brother** daisywheel cassettes and ribbon cassette systems for simpler, mess-less changes. **brother** HR-35, a high output printer.



Streamline your office operation with...

NEW

brother

PRICE
BREAKTHROUGH!

SCALLS
JUST \$399

LIST \$499

M-1509

The **brother** M-1509 is a dot matrix printer designed to offer reliability, economy, and quiet, easy operation to users of personal or small business computers. Normal print speed is a fast 180 cps (pica), but the M-1509 also provides handsome Near Letter Quality printing at 45 cps. A variety of character sets are available, and the high-density bit image capability produces impressive graphics.

The M-1509 also incorporates a number of cost- and labor-saving features. The large memory buffer releases the computer for other tasks while printing, an optional cut sheet feeder reduces paper-handling time, and the one-inch paper cut function economizes on paper. In addition, the M-1509 is supplied with character sets and control codes compatible with those of the IBM PC and the Epson FX series printers, for easy interfacing with a broad range of computer equipment.

Above all, the M-1509 is designed for people. It is exceptionally slim and light, with conveniently consolidated controls, allowing it to fit easily into a fully-equipped work station without wasting either office space or valuable operator time. It is also quiet — a fact which, though often overlooked, is of crucial importance in maintaining an efficient, industrious office environment.

Get the first printer in the world to offer both
daisywheel and dot matrix printing with...

brother NEW!

Twinwriter 5

Two Printers In One

CALL
\$1295



Now you can have 36 cps letter quality printouts for word processing requirements and 140 cps dot matrix speed for data processing or first drafts, without having to buy two separate printers. And that's not all. The **Twinwriter 5** is designed to be compatible with the new requirements of most integrated software systems. This means that it fits right into a comprehensive office system without special programming.

Switching between the two printing systems can be accomplished using ESC control codes from the host machine for unlimited ability to produce graphics or special characters not included on the daisywheel being used. Even the print quality of the dot matrix characters are just a shade this side of letter quality. A choice of six types of dot densities provides graphics that are sharp and clear. Illustrations, graphs and charts can be easily inserted in text without having to draw them in after printing of the main text.

And, of course, the **Twinwriter 5** also features all of the fine functions that have made **brother** printers the choice the world over. Bold printing, superscript, subscript, auto underline, proportional spacing, text reprinting, clear buffer and an easy-to-use front panel to control all major functions. Outstanding cost performance adds up to a savings throughout the entire life of the unit. Economical, compact and versatile... the **brother** **Twinwriter 5** daisywheel/dot matrix printer.

brother

PRINTER AND
TYPEWRITER
SUPPLIES

Cartridge
Daisywheels



Ribbon
Cassettes



Red Printing
Tapes



CALL TOLL FREE FOR INFORMATION OR ORDER

(800) 423-8215

IN OHIO, CALL - (800) 321-7731

HOT LINE: 513-663-4992

(FOR TECHNICAL ASSISTANCE OR INFORMATION ON YOUR ORDER)

MONDAY - FRIDAY
9 AM - 6 PM (EST)
SATURDAY 10 AM - 4 PM
PRICES SUBJECT TO CHANGE,
AVAILABILITY AND TYPE ERRORS

MidWest Micro-Peripherals

135 S. Springfield St., Saint Paris, Ohio 43072

All equipment shipped factory fresh with manufacturers warranty.

HIGH TECHNOLOGY — NOT HIGH PRICES



GODFATHER
used computer
SYNDICATE

..... Overstocks • Closeouts • Only Super Bargains
..... For an offer you can't refuse call (305) 774-1111

UNBEATABLE PRICE!

ONE OF THE BEST COLOR 13" ULTRA HIGH
RES R.G.B. MONITORS AVAILABLE!

You can now afford one of the best R.G.B. color monitors available today at an unheard-of price. These super R.G.B. color monitors have the best looking color graphics we have seen! These are 13" instead of the usual 12" and are the newer "flat" and "square" type tube. To reduce glare, Toshiba has employed frosted glass in combination with a professional pedestal stand. These will give 700x400 resolution with a high res board.

NEW! WITH 90-DAY WARRANTY
COMPARE AT REG. \$800

\$350!

WHILE SUPPLY LASTS
SO HURRY!



TOSHIBA

(MFG. FOR IDS)

CUSTOM PROFESSIONAL PEDESTAL STAND WITH THIS UNIT
is balanced and easy to maneuver, built specifically
for this unit, tilts 25° and swivels 90° (This is not
the cheap balljoint type stand.) Available at ...

~~\$29~~ INCLUDED

~~\$22~~ INCLUDED

MONITOR CORD WITH THIS UNIT Available at ...

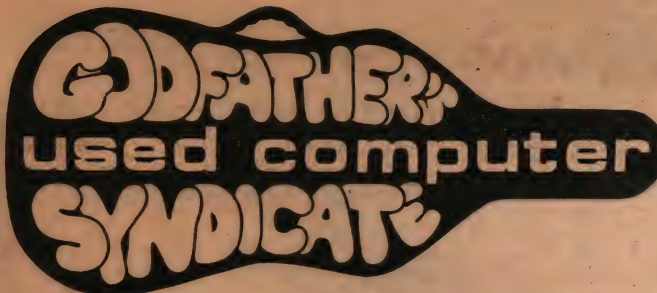
WE ONLY BUY USED EQUIPMENT UNLESS NEW COSTS LESS!!



LET US KNOW IF YOU ARE INTERESTED IN
JOINING OUR 'FAMILY' TO GET A PIECE OF THE
ACTION. PLEASE CALL US IF YOU HAVE LARGE
OR SMALL QUANTITIES OF NEW OR USED
EQUIPMENT EITHER TO BUY, SELL, OR TRADE,
OR WE CAN ADVERTISE & SELL IT FOR YOU
WITHOUT IMPLICATING YOU!! (HEH! HEH!)

TERMS: CASH, CERTIFIED CHECK, MONEY ORDER OR BANK
WIRE • C.O.D. CASH

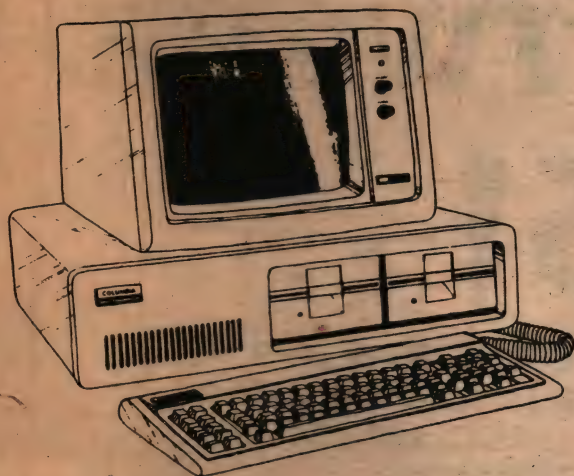
P.O. BOX 3037 • 1154 W. HIGHWAY 436 • FOREST CITY, FL 32714 • (305)774-1111



.... Overstocks • Closeouts • Only Super Bargains
 For an offer you can't refuse call (305) 774-1111

1/2 PRICE!

COLUMBIA MPC 1600-1V IBM-PC COMPATIBLE



NEW! WITH 90-DAY FACTORY WARRANTY

\$1192

WHILE SUPPLY LASTS - SO HURRY!
 REG. LIST \$2395

HARDWARE:

- 128K RAM expandable to 1 Megabyte
- Two 360K double sided double density drives • HD power supply that supports a 20 MEG w/tape backup • Keytronics keyboard with lights • 2 serial RS-232's & parallel port
- Eight full-length IBM compatible expansion slots compared to IBM's five. All the IBM brand boards we tried have worked • RGB & composite 16 color graphics board (vs. 4 on IBM).

SOFTWARE:

Lots of other machines can match the hardware features (without matching the price), but the main reason you want the Columbia is for the software. We have been compiling a

list of all the software that won't run on it. We need your help with the list because WE HAVEN'T FOUND ANYTHING THAT WON'T RUN YET!! Some Sanyo dealers are advertising 90% compatibility, so are other dealers of other machines, including the Tandy 1000, but the first time you try protected game software on these you will be disappointed. It may be some time before you get to try 'bought' software with the Columbia though, because it comes with a huge bundle of software of 16 FREE programs WORTH over \$3000.

These programs include: • MS-DOS 2.11 • MS-DOS tutorial • BasicA 2.0 (This runs all the IBM GW BASIC programs we tried) • Perfect Writer • Perfect Writer tutorial • Perfect Speller (50,000 words) • Perfect Calc

spreadsheet • Perfect Calc tutorial • Perfect Filer DBMS • Fast Graphs (color) • Perfect Link (modem program) • Home Accountant Plus • Columbia MPC tutorial • Space Commanders • Hardware diagnostics •

Besides these, Columbia runs all the popular IBM programs such as Lotus 1-2-3, Symphony, dBASE III, Visacalc, Wordstar, Flight Simulator II, Microsoft Word, and many more. CP/M-86 & MP/M-86 is also available for multiuser use.

We offer a 90-day parts and labor factory warranty with our product. Bell & Howell services this machine nationwide out of warranty, should you ever need it. I hope you are convinced that we have the best IBM compatible, and also for the best price anywhere.

WE ONLY BUY USED EQUIPMENT UNLESS NEW COSTS LESS!!

512 Memory Upgrade to 640K	\$299
384K Memory Upgrade to 512K with clock	\$299
10 MEG Half Height Drive	\$799
20 MEG Half Height Drive	\$999
30 MEG Half Height Drive	\$1199

ALL PRICES SHOWN ARE
 INSTALLED IN COLUMBIA.

Tape Backup Half Height	\$750
RGB Color Monitor w/Stand & Cable	\$350
TTL Monochrome Monitor Card	\$150
8087 Math Chip	\$150

COLUMBIA PORTABLES AVAILABLE!

WITH VARIOUS CONFIGURATIONS & PRICES



LET US KNOW IF YOU ARE INTERESTED IN JOINING OUR 'FAMILY' TO GET A PIECE OF THE ACTION. PLEASE CALL US IF YOU HAVE LARGE OR SMALL QUANTITIES OF NEW OR USED EQUIPMENT EITHER TO BUY, SELL, OR TRADE, OR WE CAN ADVERTISE & SELL IT FOR YOU WITHOUT IMPLICATING YOU!! (HEH! HEH!)

TERMS: CASH, CERTIFIED CHECK, MONEY ORDER OR BANK WIRE • MASTERCARD ADD 4% AS PRICES ARE DISCOUNTED 4% FOR CASH • ADD \$28 SHIPPING & HANDLING FOR COLUMBIA MPC UNIT • INSTORE SALES LIMITED TO SUFFICIENT STOCK.

P.O. BOX 3037 • 1154 W. HIGHWAY 436 • FOREST CITY, FL 32714 • (305)774-1111



.... Overstocks • Closeouts • Only Super Bargains
 For an offer you can't refuse call (305) 774-1111

20 MEG, 640K IBM-XT COMPATIBLE! WITH TONS OF SOFTWARE \$1995!

Retails
 For

WE ARE LOOKING FOR A FEW GOOD ENTREPRENEURS
 TO GET RICH BY BECOMING A DEALER FOR THIS BARGAIN!!
 WE WILL BE OFFERING GODFATHER'S FRANCHISES IN THE
 NEAR FUTURE BY POPULAR DEMAND!!
 CALL FOR DETAILS.

HARDWARE:

- 20 MEG half-height hard drive • 640K RAMexpandable to 1 Megabyte • One 360K double sided double density drive • HD 135 watt power supply that supports a 20 MEG w/tape backup • Keytronics type keyboard with lights • parallel port • Eight IBM compatible expansion slots compared to IBM's five. All the IBM brand boards we tried have worked • RGB & composite 16 color graphics board (vs. 4 on IBM) • TTL & composite monochrome • 4.77 - 8.00 MHZ Clock • 8087 slot.

SOFTWARE:

Lots of other machines can match the hardware features (without matching the price),

but the main reason you want this bargain is for the software. We have been compiling a list of all the software that won't run on it. We need your help with the list because WE HAVEN'T FOUND ANYTHING THAT WON'T RUN YET!! Some Sanyo dealers are advertising 90% compatibility, so are the other dealers of other machines including the Tandy 1000, but the first time you try protected game software on these you will be disappointed. It may be some time before you get to try 'bought' software with this bargain though, because it comes with a HUGE bundle of software of FREE progress WORTH over \$3000.

These programs include: • MS-DOS 2.11 • BasicA 2.0 (This runs all the IBM GW BASIC programs we tried). • Word Proces-

sor • Speller (50,000 words) • Calc spreadsheet • Data Base DBMS • Communications Modem Program • Lotus lookalike!!
 • COMPLETE ACCOUNTING PACKAGE INCLUDING: • GEN LEDGER • ACCOUNTSRECEIVABLE • ACCOUNTSPAYABLE • INVENTORY • BILLING • FORECASTING • PURCHASE ORDER • Hardware diagnostics •

Besides these, IT runs all the popular IBM programs such as Lotus 1-2-3, Symphony, dBASE III, Visacalc, Wordstar, Flight Simulator II, Microsoft Word, and many more.

We offer a 90-Day parts and labor warranty with our product. I hope you are convinced that we have the best IBM compatible, and also for the best price anywhere.

SO NEW WE DIDN'T HAVE TIME TO FINISH THIS AD!!
 PRECISE DETAILS OF THIS PRODUCT ARE NOT COMPLETE AND MAY VARY!!
 CALL OR WRITE.

WE ONLY BUY USED EQUIPMENT UNLESS NEW COSTS LESS!!



LET US KNOW IF YOU ARE INTERESTED IN JOINING OUR 'FAMILY' TO GET A PIECE OF THE ACTION. PLEASE CALL US IF YOU HAVE LARGE OR SMALL QUANTITIES OF NEW OR USED EQUIPMENT EITHER TO BUY, SELL, OR TRADE, OR WE CAN ADVERTISE & SELL IT FOR YOU WITHOUT IMPLICATING YOU!! (HEH! HEH!)

TERMS: ORDERS WILL BE TAKEN FROM INDIVIDUALS AND DEALERS FOR DELIVERY WHEN WE GET THESE SUPER BARGAINS IN. RESERVE NOW!! THIS IS NOT AN OFFER TO SELL A FRANCHISE AT THIS TIME; HOWEVER WE WILL BE GIVING FIRST CONSIDERATION TO PRESENT DEALERS OF THIS BARGAIN. CALL FOR DETAILS!!

P.O. BOX 3037 • 1154 W. HIGHWAY 436 • FOREST CITY, FL 32714 • (305)774-1111

ORDERS ONLY ... CALL TOLL FREE
1-800-468-9044
 INFORMATION & PA ORDERS 814-234-2236
 Open 9-8 Mon-Fri
 10-5 Sat East Coast Time

NEW LOWER PRICES SAME GREAT SERVICE

FAST DEPENDABLE SERVICE—Your order on in stock items is shipped UPS ground the next business day. UPS 2nd day and next day air available.
 "If we don't have the lowest price — give us a chance to beat it."



LX-80 \$226.00
 LX-80 tractor feed \$34.95
Homewriter 10 ... \$246.95
 includes Commodore or Atari
 interface
DX-10 \$229.00
 10 CPS daisywheel
DX-20 \$309.00
 20 CPS daisywheel
JX-80, LQ 1500,
SQ 2000 \$CALL



SUCCESSOR
 TO THE EPSON FX-80
 "BUILT IN NEAR LETTER QUALITY!"

EPSON FX-85

- ☐ 32 cps NLQ mode/160 cps draft mode
- ☐ Single stroke NLQ or draft mode selection
- ☐ NLQ with three built-in character sets
- ☐ Built-in IBM 5152 compatibility
- ☐ 8k Buffer
- ☐ 1-year warranty

CALL FOR OUR LOW PRICE

FX-80 + \$309
 while supply lasts

EPSON FX-185

- ☐ Wide carriage version of the FX-85
- OUR PRICE \$469.00

HS80



NEW EPSON INK JET PRINTER

- ☐ Full featured 9 nozzle portable
- ☐ Its small size and built-in battery operation make it the perfect companion to all transportable computers
- ☐ 160 cps unidirectional draft speed/32 cps NLQ
- ☐ Prints on both bond and transparencies
- ☐ Runs on built-in rechargeable NiCad batteries or AC adaptor
- ☐ Will print 50 pages on a charge
- ☐ 1-year warranty

OUR PRICE \$329



SG-10 \$CALL
SG-10C \$236.00
 Commodore ready
SG-15 \$364.00
SD-10 \$323.95
POWERTYPE .. \$299.00
 18 cps daisywheel
SD-15, SR-10,
SR-15 \$CALL

star
 MICROINCS-INC

WRITE OR CALL FOR FREE 40 PAGE CATALOG

PANSONIC

1090 \$186.95
1091 \$236.95
1092 \$349.00
1093 \$CALL

OKIDATA

OKIMATE 10 ... \$176.95
 w/Commodore or Atari interface
OKIDATA 92 ... \$339.00
 while supply lasts

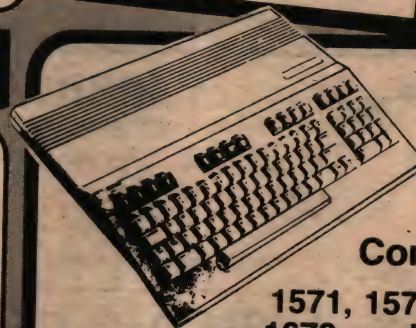


12" AMBER 122 ... \$79.99
12" GREEN 123 ... \$79.99
133 COLOR \$379.00
PC COMPATIBLES..\$CALL

MONITOR MANIA

SAKATA
SC-100 \$149.00
 composite color monitor
NEC 12" GREEN
1260 \$69.99

- ★ All items new and factory sealed
- ★ Buy with confidence, we honor manufacturer's warranty
- ★ Qualified corporate and educational purchase orders accepted
- ★ We accept MasterCard, VISA and COD orders



CALL FOR
 LATEST PRICES
 and AVAILABILITY

We are
 carrying the new
Commodore C128 computer

1571, 1572 disk drives, 1902 monitor,
 1670 modem, & Software for the C128

CLOSEOUT PRICES ON C64, 1541, and 1702

PACKAGE DEALS AVAILABLE ON C128 and DISK DRIVES!
 CALL FOR DETAILS

SX-64 portable ... \$459.00, MPS-801 ... \$149.00, 1660 ... \$49.95

We have a full line of products for Commodore computers.

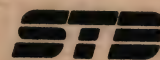
MORE
 HARDWARE



PASSWORD 300/1200 ..\$229.00
COURIER 2400 \$419.00



IRMA board \$799.00
 other Irma products, call for price



MONO PLUS \$179.00
 call for pricing on other STB products

ORDERS ONLY CALL TOLL FREE **1-800-468-9044**

INFORMATION AND
 PA ORDERS 814-234-2236

To order by mail: Send money order, certified check, personal check, Allow 2 weeks for personal check to clear.

Shipping: \$2.50 for software and accessories/\$10.00 for printers and color monitors/\$8.00 for disk drives and other

monitors/Add \$3.00 per box shipped COD. Call for other shipping charges. Additional shipping required on APO, FPO, AK, HI, and foreign orders.

Terms: ALL PRICES REFLECT CASH DISCOUNT, ADD 3%

FOR MASTERCARD OR VISA. Manufacturer's warranty honored with copy of our invoice. ALL SALES ARE FINAL. Defective items replaced or repaired at our discretion. Pennsylvania residents add 6% sales tax. Prices and terms subject to change without notice.

TUSSEY COMPUTER PRODUCTS

P.O. BOX 1006
 STATE COLLEGE, PA 16804

We've made it easy for you to decide where to buy your computer supplies. Now for the tougher decision:

50

50 DS/DD Veriflex
diskettes in envelopes
with write protect tabs
and labels.
(VALUE \$51.00)

AND

50

A durable, high
impact plastic diskette
data file to hold 50
disks.
(VALUE \$19.95)

FOR

\$50.00

A \$70.95 VALUE
FOR ONLY \$50.00!

Veriflex diskettes are certified 100% error free, with a Lifetime Warranty.

DataFile comes with six index dividers.

Offer is also available for SS/DD disks for only \$45.00
(VALUE \$69.95)

**SONY**

Boxed in tens.

50+ 100+

3 1/2" SS 1.94 1.88

3 1/2" DS 3.19 3.09

5 1/4" SS/DD 1.09 1.05

5 1/4" DS/DD 1.35 1.29

Nashua

Boxed in tens.

50+ 100+

3 1/2" SS 1.85 1.79

3 1/2" DS 2.49 2.45

5 1/4" SS/DD .87 .84

5 1/4" DS/DD .99 .96

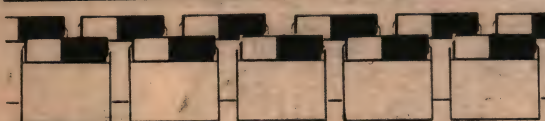
5 1/4" DS/DD - HD 2.24 2.19

Canon**Laser Printer**

- 8 pages per minute
- Parallel diablo 630 emulation
- Unsurpassed letter quality
- 17 fonts available
- Office quiet

**Only \$2,395.00**

Font Cartridges from 7.5 to 16 point \$209.49
Toner Cartridges for Canon or Hewlett Packard \$ 89.49

**Nashua DISKETTES**

	250 +	500 +	1,000 +
5 1/4" SS/DD	.54	.53	.52
5 1/4" DS/DD	.68	.64	.59
8" DS/DD	1.99	1.85	1.65

With envelopes, poly-bagged in 50's.
Sold in increments of 250.

RIBBONS

Sold in dozens.

Apple Image-writer	\$3.69	Okidata Micro	
Epson MX-70/80	\$2.65	801/82A/83A/92/93	\$1.29
Epson MX-100	\$3.99	Okidata Micro 84/94	\$2.90

Many other makes/models in stock!

3M Data Cartridges

DC600A	22.70	DC100A	12.35
DC615HC	17.80	DC300A	17.05
DC1000	14.50	DC300XL	19.45
DC300XLP	21.60		

Price each.
5 per box.

Sentinel Diskettes

as low
as **48¢**

LIFETIME WARRANTY

Everything included:

- High quality disk
- 70 percent clipping level
- Reinforced hub ring
- Tyvek envelopes
- Write protect tabs
- User ID labels
- 1.0 mil jacket

	100+	500+	1,000+	5,000+	10,000+
5 1/4" SS/DD	.54	.53	.52	.51	.48
5 1/4" DS/DD	.68	.67	.64	.62	.58

Prices for each disk. Please order in multiples of 50.

Tilt 'n Turn

- Fits large CRT's with feet separation up to 12"x12"
- Stable 25° tilt and 360° turn
- Anti-skid feet

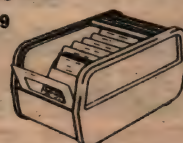
\$25⁴⁵ each**Printer Stand**

- Metal, cream colored baked enamel
- Center slot for bottom feed printers
- Won't "bow" up to 100 lbs.

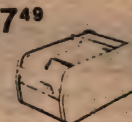
\$25⁴⁵**\$29⁷⁵****Deluxe Rolltop Files**

- Color coded labels, dividers.
- anti-skid feet
- many color choices

5 1/4" Model
Holds up to 120
\$24⁹⁹



3 1/2" Model
Holds up to 55
\$17⁴⁹

**SMART CARE PRODUCTS**

Total Care System Includes: Head Cleaning Kit, Swabs, Wipes, Anti Static Spray and Screen Terminal Cleaner

For 3 1/2" \$14.95 each
For 5 1/4" \$10.95 each

3 1/2" Head Cleaning Kit
Includes label to record cleaning
\$9.95 each

5 1/4" Head Cleaning Kit
\$7.95 each

8" Head Cleaning Kit
\$9.95 each

KEYBOARD COVER

- Rigid smoked bronze plastic
- Fits keyboard working area 16 1/2" x 4 1/2"

\$9³⁵**ANTI-GLARE SCREEN FILTER**

- Black nylon monofilament
- Vinyl foam borders a narrow black aluminum frame.

\$21²⁵

USA FLEX

135 N. Brandon, Glendale Heights, IL 60139

CALL TOLL FREE

1-800-USA-FLEX (872-3539)

7 to 7 Central Time

In Illinois 1 (312) 351-9700

Shipping/handling additional. Visa, MasterCard and prepaid orders accepted. Corporations rated 3A2 or better and government accounts are accepted on a Net 30 basis. C.O.D. orders add \$5.00 special handling charge. APO, SPO, AK, HI & PR orders add an additional 5 percent of the total amount of order to cover PAL and insurance. Illinois residents add 6 1/4 percent. Minimum order \$50.00

TOLL FREE

800-854-8230CA Residents **714-558-8813**

OUR POLICY

- Surcharge for VISA or Mastercard.
- Volume purchasing agreements available.
- Orders subject to availability.
- Pricing subject to change without notice.
- ACP Retail Store pricing may vary. Not responsible for typos.

MAJOR BRAND LIQUIDATION

Retail Value \$5000

Save up to 60%

ACP PRICE
NOW ONLY!**\$1985⁰⁰**Color 14" RGB Included
10 Mb Hard Disk

ACP is proud to make this one-time special offer for a complete computer system that is 110% compatible to IBM™. This is by far the most significant bargain that we at ACP have offered in our 10 year history.

This system was successfully designed and manufactured to exceed IBM™'s PC in terms of quality, expansion modularity and capability, aesthetic appearance, and performance.

The system design utilizes the latest in state-of-the-art technology including:

- VLSI - Large Scale Integration Circuit Design
- Ergonomic CRT Design with Tilt Screen
- Professional Molded Packaging and Design
- High Quality 100 Watt Switching Supply
- Complete Integrated System
- Microsoft Compatible Mouse Function

The system is not a Taiwan or Korean knock-off. Each component is specifically designed and specified to meet the highest performance and reliability standards in the industry. It represents the best that Japanese craftsmen have to offer and you will be equally proud to own one of your own. ACP has a limited quantity of these systems in several different configurations. IBM™ PC-DOS™ v1.1/2.1, MS-DOS™ v2.11 and Concurrent v3.1 compatible. We have found no known incompatibility with any IBM™ PC application. Our technical staff has 8.5 Megabytes of various MS-DOS software packages installed including Lotus 1-2-3 and Flight Simulator. Each system comes complete with a 90 day warranty.

ACP Base System Consists of:

- (1) 360K DD/DS Floppy Disk Drive
- Mouse with Software
- 256K Memory Expandable to 640K on the Motherboard
- Deluxe Keyboard with LEDs
- Serial Port and Parallel Port
- Color or Monochrome Controller
- 4.77MHz, 8088 CPU
- 100 Watt Switching Supply w/Fan
- Three Expansion Slots
- Optional 6 Slot Expansion Chassis with Power Supply (add \$399)

Base System A (as above) **\$995.00**

	SYSTEM CONFIGURATION	Est IBM List*	Your Price
SYSTEM A	Base System (see left) PC with 360K Floppy, Keyboard & Mouse.	\$2100.00	\$995.00
SYSTEM B	Base System (see left) plus Add'l 360K Floppy Drive	\$2295.00	\$1099.00
SYSTEM C	Base System plus 12" Green Monitor with Detachable Tilt/Swivel Base.	\$2575.00	\$1399.00
SYSTEM D	Base System plus 12" Color Monitor with Detachable Tilt/Swivel Base.	\$2995.00	\$1699.00
SYSTEM E	Base System plus Ctr Monitor, 10Mb Hard Disk and Boot Diagnostics.	\$5000.00	\$1985.00
SYSTEM F	Base System plus 80 Col. x 25 Line LCD Screen	N/A	\$1299.00

*Assumes required add-in boards to provide same capacity

IBM PC is a trademark of IBM Corp.

LQP PRINTER SPECIAL

Major Manufacturer
Daisy Wheel Model 620
Letter Quality Printer
with Serial Interface.

Perfect for IBM PC and
Compatibles. Prints 25cps and
comes with 90 day warranty.

List \$1495.....
With purchase of
any system above **\$495⁰⁰**
\$395.00



10 Mb \$449.00
HARD DISK

w/Controller for IBM™ PC and
Compatibles.

10 Mb Standalone **\$249.00**
20 Mb Standalone **\$419.00**

PC UPGRADE SPECIAL

\$8⁹⁵ SET OF (9) 64K RAMS

\$34⁹⁵ SET OF (9) 256K RAMS

\$5.95 128K PIGGYBACKS

IBM Brand ASYNCH

INTERFACE CARD

List \$100 **ACP \$49.95****5 Mb EXTERNAL**

Sharp IBM Look-a-like w/contr. for
IBM PC. Sub-Sys Price: **\$429.00**
External Enclosure Add **\$195.00**

Internal w/controller
Sub-System Price: **\$299.00**

DELUXE JOYSTICK**\$11.95**

Compatible w/Atari
2600, 400, 800, VIC-20/
64 and Apple. Apple re-
quires optional cable
adapter. Add **\$2.95**

APPLE DISK DRIVE**\$115.00**

High quality 1/2 high
drive for Apple II, II+,
Ile or IIc. Apple IIc re-
quires optional cable
adapter. Add **\$10.00**

★ Advanced Computer Products Inc.

Mail Order: P.O. Box 17329 Irvine, CA 92713

Retail: 1310 B E. Edinger, Santa Ana, CA 92705

800-992-0123

BULK DISKETTES

"Simply the best value on diskettes available today!!"

5 1/4" SSDD 5 1/4" DSDD
79¢ **89¢** ea. ea.

(SOFT SECTOR ONLY)

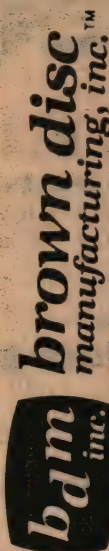
min. 25

Includes tyvek sleeves, write-protect tabs,
and reinforced hubs.

3 1/2" SSDD 3 1/2" DSDD
1.99 **2.25** ea. ea.

min. 25

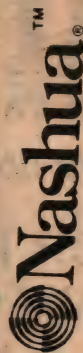
100% CERTIFIED QUALITY LIFETIME
MEDIA WARRANTY



brown disc
manufacturing, inc.™

5 1/4" SSDD \$.95 ea.
 5 1/4" DSDD 1.05 ea.
 3 1/2" SSDD 2.20 ea.
 3 1/2" DSDD 2.50 ea.

min. 25



5 1/4" SSDD \$.95 ea.
 5 1/4" DSDD 1.05 ea.
 3 1/2" SSDD CALL
 3 1/2" DSDD CALL

min. 25



ATHANA INCORPORATED™

5 1/4" SSDD \$.95 ea.
 5 1/4" DSDD 1.05 ea.
 3 1/2" SSDD CALL
 3 1/2" DSDD CALL

Includes tyvek sleeves, write-protect tabs,
and reinforced hubs.
min. 25

SMART MODEMS

"WE SPEAK YOUR LANGUAGE"

300 Baud	\$ 69.00
1200 Baud	199.00
2400 Baud	469.00
Adaptor cables	9.95

100% TESTED

HAYES COMPATIBLE

5 YR. WARRANTY

Panasonic™ Printers

Specials

KXP-1090	80 cps, dot matrix	\$189.
KXP-1091*	120 cps, 22 NLO, dot matrix	239.
KXP-1092	180 cps, 35 NLO, dot matrix	399.
KXP-1093	160 cps, 25-30 NLO, wide carriage, dot matrix	499.
KXP-3151	22 cps, daisy wheel	499.

*Voted No. 1 Printer by Consumers Report, 648 issue.
All Panasonic printers come with a limited two year warranty!

BAK-STOL™

(COMPUTER BACK CHAIR)

Model	Desc.	LIST SALE
#S2000	Brentwood oak veneer with rich upholstery, 30" x 16" x 21" H	\$ 79.00 \$ 39.00
#S2010	Solid oak hardwood, adjustable on casters, velvet upholstery, 21" x 18" x 20" H	89.95 44.95
#S2020	Tubular steel, adjustable mounted on casters, rugged woven fabric upholstery, 20" x 24" x 21" H	119.00 59.00

VIKOR™ FLEXIBLE HEAD CLEANING DISKS

"The cleaning disk used and recommended by more drive manufacturers."

3 1/2" HEAD CLEANER	Special \$35.15
3 1/2" HEAD CLEANER (V. SCINTILLATE FOR MACINTOSH)	39.95
5 1/4" HEAD CLEANER	26.35
8" HEAD CLEANER	27.25

ONLY DRY SOLUTION CLEANER AVAILABLE TODAY.

Magnetic Media™

of New England Inc.

P.O. Box 780
Beverly, MA 01915

"Fastest Growing
Distributor In The
Northeast!"

FOR ORDERS:
800-992-0123

IN MASS:
617-927-0905

SHIPPING: We will ship same day UPS. (24-hour on any item in stock)
PAYMENT: MASTERCARD & VISA (add 2%); C.O.D. (add \$1.90);
CHECKS payable to Magnetic Media of New England.
TAXES: Mass. residents only, add 5%.

Prices and availability subject to change without notice.

SPECIAL OFFERS

DISKETTE STORAGE CASES

Order 100 5 1/4" disks on this offer and get a 150-diskette holder FREE!


Order 60 5 1/4" disks on this offer and for \$9.95 more, receive a color coded SRW Minidex 60!

Order 50 5 1/4" disks on this offer and for \$4.95 more, receive a Flip'n'File Datacase 50!

Order 25-3 1/2" disks on this offer and for \$7.94 more, receive a color coded SRW Microdex 25!

25-3 1/2" disk holder alone	\$14.95
50-5 1/4" disk holder alone	9.95
60-5 1/4" disk holder alone	12.95

No Lower Price Anywhere

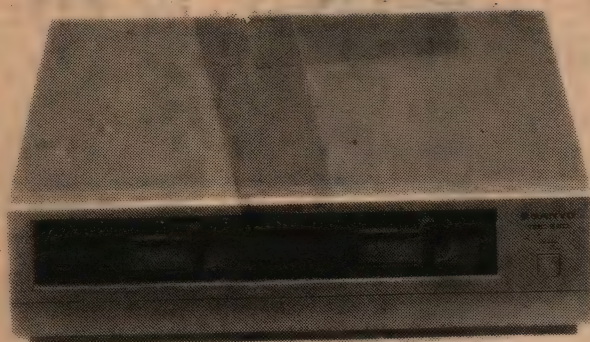
We have the lowest prices for  **Sanyo**

SOLVEX MARKETING

WEST 805-393-2247

EAST 203-928-3654

PHONE ORDERS
ONLY



\$599

(Disk drives not included)

XT version 10meg internal + 800K Floppy

\$1499 installed!

!!! Includes FREE software listed below !!!

- MS-DOS 2.11
- MS-DOS 1.25
- 800K Super DOS
- Wordstar
- Spellstar
- Mailmerge
- Calcstar
- Infostar
- Easywriter I
- BASIC

DISK DRIVE OPTION (A)

- (2) SS/DD 160K Drives
- Mounting Hardware
- Installation Instructions

\$ 99.00

DISK DRIVE OPTION (B)

- (2) DS/DD 360K Drives
- Mounting Hardware
- Installation Instructions

\$ 199.00

DISK DRIVE OPTION (C)

- (2) DS/DD 96 tpi 800K Drives
- Mounting Hardware
- Installation Instructions
- 40/80 Track Mods. Included

\$ 249.00

SINGLE FLOPPY DISK DRIVES

TEAC	FD-55A	160K	..	\$	59.00
	FD-55B	360K	..	\$	119.00
	FD-55F	800K	..	\$	129.00

The "Owl"

\$799

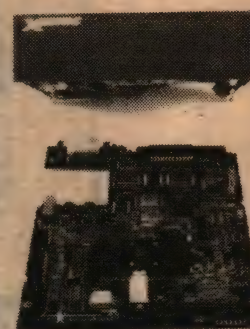
INTERNAL !!

10 MB DRIVE

Complete with
all manuals,
software, and
cables.

Available for:

- IBM
- SANYO
- TELEVIDEO
- OTHERS



*** ACCESSORIES ***

PR-5000 12 cps LQP — \$ 279.00

PR-5500 18 cps LQP
(15" carriage) — \$ 385.00

CRT-30 12" Monitor — \$ 89.00

DMC-6113 13"
Hi-Res RGB Color — \$ 399.00

16K Printer Buffer — \$ 84.95

Amdex Printer 5040
with Tractors List \$1895
Unbelievable @ — \$ 799.00

• CHOOSE THE SYSTEM THAT'S RIGHT FOR YOU !!!

- Order the basic CPU with all software included and pick the disk drive option that best suits your needs . . .
- All systems carry full 90 day warranty

Minimum order
\$50.00

★ CASH PRICE ONLY ★

Check in advance. Add 3% for VISA/MC. No Returns.
Shipping & Handling charges will be added to each order.

For complete technical literature send \$1.00 to:

Micro Supply Organization, Inc.
4909 Stockdale Hwy., #180
Bakersfield, CA 93309

PHONE ORDERS ONLY:
EAST 203-928-6555
WEST 805-393-2247

No Lower Price Anywhere

We have the lowest prices for **Sanyo**

SOLVEX MARKETING

WEST 805-393-2247

EAST 203-928-3654

PHONE ORDERS
ONLY

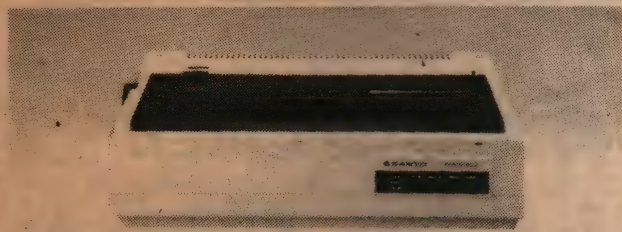
\$649!

TeleVideo Portable Computers
TPC-1

- # TELEWRITE - Word Processing Software
- # TELECALC - Spreadsheet
- # TELECHART - Integrated Business Graphics
- # CP/M-80 v. 2.2
- # 2-368 K / Drives Formatted
- # 64 K RAM, Expandable to 128 K
- # 32 K Graphics RAM
- # 640 x 240 Bit Mapped Display
- # 9" Yellow Non-Glare Screen
- # Serial Port, Printer Port, Mouse Port
- # IBM Style Keyboard
- # Easily Connected to Televideo Network Systems
- # Read Dozens of CP/M Disk Formats
with Mycroft Lab's COMPAT. Only \$49.00



PR5000 \$279



- # Letter-Quality Printer
- # Accepts Paper up to 13" Wide
- # 14 cps Bi-directional Printing
- # 10, 12 or 15 cpi Print Pitch
- # 2 ips Paper Feed
- # Centronics Interface
- # Tractor Feed Available (\$125)



64K PRINT BUFFER - \$89.

SANYO MBC 3000 \$599

- # WORDSTAR, SPELLSTAR,
MAILMERGE, CALCSTAR,
INFOSTAR, BASIC,
CP/M-80 v. 2.2

- # DUAL 1 MB 8" DRIVES
- # READS IBM 3740 DISKS
- # 2 SERIAL RS-232 PORTS
- # PRINTER PORT
- # INTEL MULTIBUS SLOT



★ **CASH PRICE ONLY** ★

!!! ALSO IN STOCK !!!

- # DUAL 8" 1 MB FLOPPY: \$399.
- 8 MB HARD DISK: \$999.
- (For MBC 1100 Series)

- # CRX 1100 TERMINAL -
- 8 PF KEYS, MENU SETUP,
- 4 DIFFERENT EMULATIONS
- PRINTER PORT -- \$299. (3 or more)

Check in advance. Add 3% for VISA/MC. No Returns.
Shipping & Handling charges will be added to each order.

For complete technical literature send \$1⁰⁰ to:

MICRO SUPPLY ORGANIZATION, INC.
4909 Stockdale Hwy., #180
Bakersfield, CA 93309

PHONE ORDERS ONLY:

EAST 203-928-6555 WEST 805-393-2247

No Lower Price Anywhere

We have the lowest prices for **Sanyo**

SOLVEX MARKETING

WEST 805-393-2247

EAST 203-928-3654

PHONE ORDERS
ONLY

THE SANYO WORD PROCESSING SYSTEM

\$999 !

original list \$ 3194.00 !

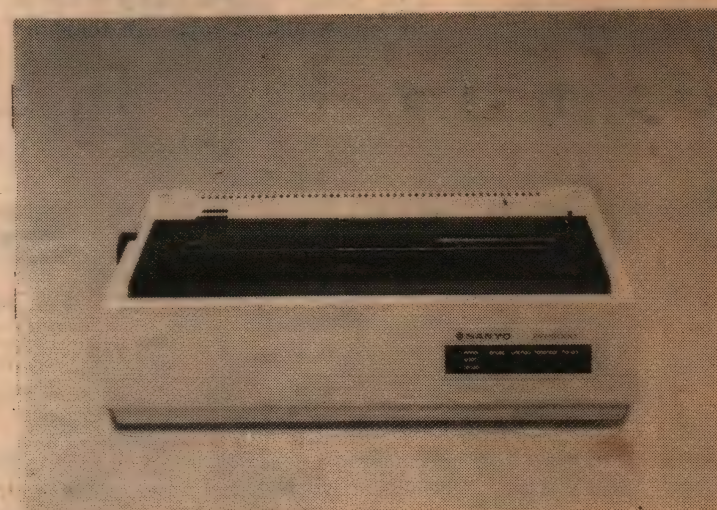
MBC 1250

Integrated Computer with
High-Resolution Display

+

PR5000

Letter-Quality Daisy Wheel Printer



• INCLUDES PRINTER CABLE
& FULL WARRANTY •

!!! Includes FREE software • Wordstar • Spellstar • Mailmerge • Calcstar • Infostar • BASIC

PRINT BUFFER - 89.
D BASE II - 99.
COMPAT - 79.
MITE - 89.
PROGRAMMERS
UTILITY PAK - 39.

CALL FOR BUSINESS &
ACCOUNTING SOFTWARE !!

★ CASH PRICE ONLY ★

Check in advance. Add 3% for VISA/MC. No Returns.

Shipping & Handling charges will be added to each order.

For complete technical literature send \$1.00 to:

MICRO SUPPLY ORGANIZATION, INC.
4909 Stockdale Hwy., #180
Bakersfield, CA 93309

PHONE ORDERS ONLY:
EAST 203-928-3654
WEST 805-393-2247

Tools That Make Your Job Easier

For PCDOS/MSDOS (2.0 and above/128K) • IBM PC/Compatibles, PC Jr., Tandy 1000/1200/2000, & others
For CPM80 2.2/3.0 (Z80 required/64K) • 8" SSSD, Kaypro 2/4, Osborne I SD/DD, Apple II, & others

MIX EDITOR

Programmable, Full/Split
Screen Text Processor

Introductory
Offer

29⁹⁵

Great For All Languages

A general purpose text processor, the MIX Editor is packed with features that make it useful with any language. It has auto indent for structured languages like Pascal or C. It has automatic line numbering for BASIC (255 character lines). It even has fill and justify for English.

Split Screen

You can split the screen horizontally or vertically and edit two files simultaneously.

Custom Key Layouts

Commands are mapped to keys just like WordStar. If you don't like the WordStar layout, it's easy to change it. Any key can be mapped to any command. You can also define a key to generate a string of characters, great for entering keywords.

Macro Commands

The MIX Editor allows a sequence of commands to be executed with a single keystroke. You can define a complete editing operation and perform it at the touch of a key.

Custom Setup Files

Custom keyboard layouts and macro commands can be saved in setup files. You can create a different setup file for each language you use.

MSDOS Features

Execute any DOS command or run another program from inside the editor. You can even enter DOS and then return to the editor by typing exit.

MIX C COMPILER

Full K&R Standard C Language
Unix Compatible Function Library

Introductory
Offer

39⁹⁵

Complete & Standard

MIX C is a complete and standard implementation of C as defined by Kernighan and Ritchie. Coupled with a Unix compatible function library, it greatly enhances your ability to write portable programs.

The Best C Manual

MIX C is complemented by a 400 page manual that includes a tutorial. It explains all the various features of the C language. You may find it more helpful than many of the books written about C.

Fast Development

MIX C includes a fast single pass compiler and an equally fast linker. Both are executed with a simple one line command. Together they make program development a quick and easy process.

Fast Execution

The programs developed with MIX C are fast. For example, the often quoted prime number benchmark executes in a very respectable 17 seconds on a standard IBM PC.

Standard Functions

In addition to the functions described by K&R, MIX C includes the more exotic functions like *setjmp* and *longjmp*. Source code is also included.

Special Functions

MIX C provides access to your machine's specific features through BDOS and BIOS functions. The CHAIN function lets you chain from one program to another. The MSDOS version even has one function that executes any DOS command string while another executes programs and returns.

Language Features

- Data Types: char, short, int, unsigned, long, float, double (MSDOS version performs BCD arithmetic on float and double-no roundoff errors)
- Data Classes: auto, static, extern, register
- Struct, Union, Bit Fields (struct assignment supported)
- Typedef, Initialization
- All operators and macro commands are supported

30 DAY MONEY BACK GUARANTEE

Orders Only: Call Toll Free 1-800-523-9520, (Texas only 1-800-622-4070)

MIX Editor _____ \$29.95 + shipping (\$5 USA/\$10 Foreign) Texas residents add 6% sales tax

MIX C _____ \$39.95 + shipping (\$5 USA/\$25 Foreign) Texas residents add 6% sales tax

Visa _____ MasterCard _____ Card # _____ Exp. Date _____

COD _____ Check _____ Money Order _____ Disk Format _____

Computer _____ Operating System: MSDOS _____ PC DOS _____ CPM80 _____

Name _____

Street _____

City/State/Zip _____

Country _____

Phone _____

MIX
software

2116 E. Arapaho
Suite 363
Richardson, Tx 75081

Dealer Inquiries Welcome
Call (214) 783-6001

MSDOS is a trademark of Microsoft PCDOS is a trademark of IBM CPM80 is a trademark of Digital Research WordStar is a trademark of MicroPro

S

ORDER TOLL FREE—800-824-3432

(Orders only — For information call 818-341-8833)



MEMORY EXPANSION

EXPAND YOUR P/C-X/T WITH THESE 64K DYNAMIC RAMS. TAKE ADVANTAGE OF THE MARKET AND SAVE!

**NOW ONLY
9/\$10.99**

8" DRIVES

These drives were customers returns from a large computer house. Mfr's include Shugart, CDC, Sieman, Remex. recommended for parts only. Some may be 220V.
AS IS

SS \$39.99 DS \$49.99

BOARDS

WE HAVE A LIMITED SUPPLY OF WICAT SYSTEM 150 68000 BASED MULTI-BUS BOARDS. THEY ARE FULLY POPULATED BUT, UNFORTUNATELY, WE HAVE NO DOCUMENTATION. WE WANT TO BLOW THEM OUT. THESE BOARDS ARE UNTESTED AND BECAUSE OF THAT, PRICE-AS-IS. SUPPLY IS VERY LIMITED!

CPU w/68000 Chip	199.99
CPU w/o 68000	149.99
I/O 4-7 Port	99.99
256K Memory	179.99
WD1000 Floppy Controller	79.99

IC'S

STOCK #	1-24	25-99	100+
AA7400	24	22	20
AA7401	24	22	20
AA7402	24	22	20
AA7403	24	22	20
AA7404	24	22	20
AA7405	24	22	20
AA7406	42	38	35
AA7407	28	26	25
AA7408	24	22	20
AA7409	24	22	20
AA7410	24	22	20
AA7411	24	22	20
AA7412	46	44	42
AA7413	37	35	33
AA7414	46	44	42
AA7416	24	22	20
AA7417	24	22	20
AA7420	24	22	20
AA7421	46	44	42
AA7422	46	44	42
AA7423	55	52	50
AA7425	28	26	24
AA7426	28	26	24
AA7427	24	22	20
AA7428	57	55	52
AA7430	24	22	20
AA7432	28	26	24
AA7433	45	43	41
AA7437	24	22	20
AA7438	28	26	24
AA7439	57	55	52
AA7440	24	22	20

HEADS UP!

THE HEAD ASSEMBLY IS THE SINGLE MOST COSTLY PART IN YOUR DISK DRIVE. PRICES RANGE UP TO \$200! WE HAVE MPI HEAD ASSEMBLIES AND ARE OFFERING THEM AT UNBELIEVABLE SAVINGS. AT THIS PRICE IT PAYS TO KEEP A SPARE OR TWO! ALL HEADS ARE COMPLETE INCLUDING CONNECTOR. FULLY GUARANTEED.

**DP1002
DOUBLE-SIDED (48 tpi) \$34.99**

**PRICE BREAKTHROUGH!
256K D-RAM (150ns)**

\$5.99

BOARDS O'PLENTY

HAVE WE GOT A DEAL FOR YOU! WE BOUGHT A LARGE QUANTITY OF POPULATED CIRCUIT BOARDS. THE AMOUNT OF COMPONENTS SOLDERED IN THESE BOARDS IS STAGGERING! ALL TYPES INCLUDING I.C.'S, TRANSISTORS, CAPACITORS, ETC. REMOVE THEM YOURSELF AND SAVE! JUST TO SWEETEN THE DEAL, WE'RE GOING TO SELL THEM BY THE POUND!!

GB1011 ASST. BOARDS 3#/\$17.99

TANDON 100-2

THIS IS THE INDUSTRY STANDARD! DOUBLE-SIDED, DOUBLE DENSITY, 40 TRACK. NEW — FULLY GUARANTEED.

\$129.99

APPLE COMPATIBLE

HIGH QUALITY DRIVES COMPLETE WITH CASE AND ALL CABLES. ALL YOU HAVE TO DO IS PLUG IT INTO YOUR CONTROLLER CARD! ALL DRIVES INCLUDE DOCUMENTATION AND 90 DAY REPLACEMENT WARRANTY.

**DD 1001 FULL HEIGHT \$159.99
DD 1002 HALF HEIGHT \$169.99**

HALF-HEIGHT DRIVES

- IBM COMPATIBLE
- FULLY GUARANTEED

**DD1007 SINGLE-SIDED \$119.99
DD1008 DOUBLE-SIDED \$139.99**

EPROMS

WE BOUGHT A LARGE QUANTITY OF EPROMS THAT WERE REMOVED FROM SOCKETS, ERASED & TESTED. THERE'RE FULLY GUARENTENDED!

**2716 1.99 2732 2.79
2764 3.49 27128 4.99**

FANS, FANS, FANS

4 1/8" SQUARE MUFFIN TYPE FANS. REMOVED FROM EQUIPMENT. WE CLEANED & TESTED THEM AND ARE GOING TO SELL THEM AT A BIG SAVINGS.

FA1002 \$4.99

GENERIC DISKETTES

SINGLE-SIDED
DOUBLE-DENSITY

**D11005 1-9 10-99 100+
GENERIC DISKETTE 1.19 1.09 .99**

Monthly Special

NO SHIPPING CHARGES

5 1/4" DISK DRIVE SALE

MPI/B52

FULL-HEIGHT

DS DD — 40 TRACK

(TANDON 100-2 EQUIVALENT)

BRAND NEW

FULLY GUARANTEED

SPECIAL BUY \$79.99

SIEMANS FDD 100-8

- SSDD
- Shugart 801R Compatible
- 77 Tracks
- Brand New

**DD100-8
\$129.99**

We carry a complete line of electronic components
Call or Write for a free catalog



NICORN ELECTRONICS

10010 Canoga Ave., Unit B-8, Chatsworth, CA 91311

(818) 341-8833

Minimum order \$10.00 — No shipping charges on prepaid orders — C.O.D. add \$3.00 — UPS Blue add \$3.00 — Calif. residents add 6 1/2% sales tax. Personal checks held for clearance. VISA - MC.

MODEMS

Modems

We Take The
Puzzle Out Of
Buying Modems

(As Well As the High Prices)

Modems

300/1200 BAUD STAND ALONE

Hayes Smartmodem 1200 (AD,AA,SP,LD)	419
U.S. Robotics Password (AD,AA,SP,IC)	239
Prometheus 1200 (AD,AA,SP,OA)	329
Volkmodem 12 (AD,AA,RC)	199
MultiTech MT-212-HC (AD,AA,SP)	372
Ven-Tel 1200 Plus (AD,AA,LD,SP)	435
Vadic Maxwell 1200V (AD,AA)	396

BEST
BUY

300/1200 BAUD INTERNAL (IBM)

Hayes SmartModem 1200B (AD,AA,SP,IS)	385
Prometheus 1200B (AD,AA,SP,IS,IP)	379
Ven-Tel Half Card (AD,AA,IS)	409
Vadic Maxwell 1200PC (AD,AA,IS)	366
MultiTech MT-212-PC (AD,AA,IS,SP)	372

OTHER 300/1200 BAUD INTERNALS

Prometheus 1200A (APPLE II) (AD,AA,SP,IS)	359
Ven-Tel (HP 150) (AD,AA,SP)	345

300 BAUD STAND ALONE

Hayes Smartmodem 300 (AD,AA,SP,LD)	199
U.S. Robotics Password 300 (AD,AA,SP,IC)	169
Volkmodem (RC)	59
Vadic Maxwell 300V (AD,AA)	222

300 BAUD INTERNAL

Hayes Micromodem IIe (Apple II) (AD,AA,SP,IS)	225
Vadic Maxwell 300PC (IBM) (AD,AA,IS)	222

Feature Codes:

AD—Auto Dial
AA—Auto Answer
SP—Built-in Speaker
IC—Includes cable
IS—Includes Software
IP—Includes serial port
LD—LED Indicator lights
RC—Requires special cable
OA—Options available

G S H I N B U M J Z X S A
Z W A M E D O M T R A M S
Y I B X R O V X W W N P T
L T V O L K S M O D E M C
W C R O S S T A L K A P U
X H U M S P A S S W O R D
U S R O B O T I C S H O O
M F U D U D F F F W W H R
Y U A E A S T T I N C C P
B T O M H V J L W E A N K
A S W S A T L S T A T A R
B O D D F E E I P J R F O
Y R I U W Y T M T G Y E W
N C L X A L N B O X A B T
E I A H U B E H M R T J E
T M T M D J V W A F P S N

The following words can all be
found in the puzzle above. They
can be purchased by calling:
EAST, Inc. 1-800-631-6794

PROMETHEUS
VENTEL
PASSWORD
MULTITECH
BABYMUX
CROSSTALK
VOLKSMODEM
ANCHOR
BAUD
SWITCH

NETWORK PRODUCTS
HAYES
US ROBOTICS
VADIC
BABYNET
MAXWELL
SMARTMODEM
MICROSTUF
SOFTWARE
DATA

2400 BAUD STAND ALONE

Hayes Smartmodem 2400 (AD,AA,SP,LD)	675
U.S. Robotics Courier (AD,AA,SP,LD)	495
MultiTech 224 (AD,AA,LD,SP)	675
Vadic Maxwell 2400V (AD,AA)	595

2400 BAUD INTERNAL (IBM)

U.S. Robotics Courier-PC (AD,AA,SP,IS)	495
Vadic Maxwell 2400-PC (AD,AA,IS)	595
MultiTech 224-PC (AD,AA,IS)	675

9600 BAUD MODEMS

Network Products (Synchronous, 4-wire leased line)	1995
---	------

MULTIPLEXERS

Network Products BabyMux	1325
Network products BabyNet	1325

DATA COMMUNICATIONS SOFTWARE

Crosstalk (IBM,CPM)	125
ASCII Express (APPLE II)	75

ACCESSORIES

Blackjack	55
Replaces mouth piece of regular phone with RJ-11 Modular Jack	
A/B Switch	125
Switches all 25 pins of a serial port between a modem and a printer	
Serial Card for Apple II	75
Serial Card for IBM-PC	75

Puzzled About Modems?
Call Toll Free for Your
Free Copy of
"Modems, a User's Handbook"

Free

MODEMS
A USER'S
HANDBOOK

East Inc

To Order Call:

Visa/MC Accepted

1-800-631-6794

In Colorado Call 303-663-3278

4221 W. Eisenhower
Loveland, Colorado 80537

MODEMS

DISK WORLD! is proud to introduce the lowest-priced, LIFETIME-WARRANTY diskettes ever!

And they're BRAND NAME PRODUCT to boot!

5.25" SSDD → .69 ea. 5.25" DSDD → .79 ea.

5.25" DSDD-HD → \$2.25 ea.

3.50" SSDD → \$2.09 ea. 3.50" DSDD → \$2.55 ea.

Based on multiples of 100 each.
Boxed in 10's with heavy-duty cardboard sleeves, user ID labels,
reinforced hubs (where appropriate) and write-protect tabs.

Introducing Wabash Pinnacle Series Diskettes.

Two years ago, if you'd told me I'd be writing this ad, I would have laughed.

At that time, Wabash diskettes were synonymous with "s—t".

Just saying that quality control was poor would be charitable.

So much was wrong that DISK WORLD wouldn't sell them.

That was yesterday.

Kearney-National Inc., a \$202-million division of a much larger company, came into Wabash.

Out went the old management, the old methods, the old production techniques... and in went a lot of new people, ideas, production lines and some really imaginative thinking.

The end result.

Today, I'm proud to offer you the Wabash Pinnacle Series of diskettes at the prices shown.

This isn't evolution in diskette manufacturing: it's revolution.

Here's what you get.

Wabash Pinnacle diskettes are
...certified 100% Error Free
...are covered by a LIFETIME WARRANTY
...meet or exceed all industry specifications (by quite some distance)
...and are simply the best value in diskettes available today.

The torture test.

Considering Wabash's earlier dubious reputation, I wasn't exactly a true believer when their Director of Marketing came into my office with samples.

So I took a box at random, selected a disk, bent the thing every which way and slipped it into my IBM-PC.

It formatted. It booted. It stored and retrieved data.

That wasn't enough.

I gave samples of the diskettes to Curt Rostenbach and, in turn, to Tom Streit, both hackers of long experience and members of the Waukegan (Illinois) Apple Users Group.

Tom really went at it.

He took a quartz-halogen lamp, aimed it at the diskette until it started to smoke (and melt)... and then formatted, booted the diskette and stored and retrieved data!

The same terribly (and intentionally) mutilated diskette ran on an ITT, Corona and IBM.

Curt was nicer.

He simply bent the diskette every which way... and it still formatted, booted and ran on his Apple.

The best buy I've ever seen.

DISK WORLD!, Inc. sells more flexible magnetic media by mail-order than anyone else in the world.

I, as President of the corporation, won't tolerate a product with a failure rate of more than 1/1000th of 1 percent.

I also don't like companies who try to milk a "quality" or "premium" image for a higher price like Dysan and Verbatim did... until they failed.

As President of DISK WORLD!, Inc., my motto is simple: "the best diskette for the least amount of money."

Wabash is it.

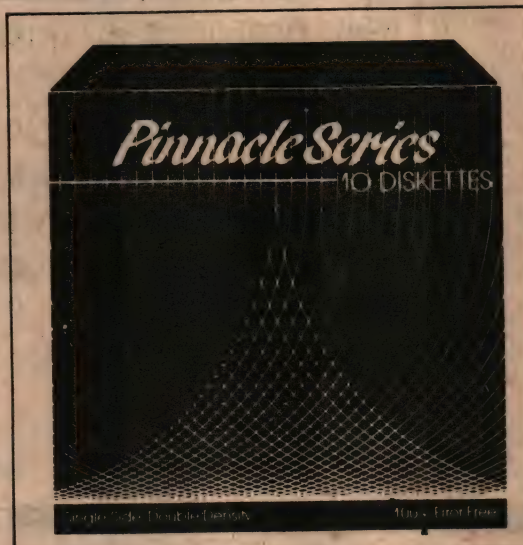
Right now, there is no better value than the Wabash Pinnacle Series of diskettes.

Granted, you have to buy a hundred at a time, but so what? Split the order with friends, relatives, co-workers or even your worst enemies.

The key thing is to get the most diskette for the money.

And this is it.

(Incidentally, as a corporation, we put our money where our



mouth is. Our first order for Wabash Pinnacle Diskettes was 1.5-million units.)

That's an awful lot of faith and confidence.

But, then again, I have the diskette that Tom Streit literally melted... and kept on running.

The truth about \$1.00 or less diskettes.

More and more ads are popping up offering diskettes for \$1.00 or less.

By the same token, more and more people who were selling used cars a few months ago are now selling diskettes by mail.

We did a little survey of current ads for diskettes advertised for a dollar or less and did some analysis of the market and here's what we found as it applies to 5.25" DSDD diskettes "supposedly" selling for a dollar or less.

VENDOR:	ADVERTISED LOW PRICE:	ACTUAL PRICE PER 100:	ACTUAL MFR.:
Unitech	.89 ea.	.92 ea.	Unspecified.
Datatech	.99 ea.	.99 ea.	Unspecified.
Computer Club	.95 ea.	.98 ea.	Unspecified.
	.99 ea.	1.02 ea.	Unspecified.
Communications & Electronics	.49 ea.	.80 ea.	Unspecified.
Precision Data	.89 ea.	.93 ea.	Unspecified.
Diskette Connec.	.93 ea.	.93 ea.	Unspecified.
Comp Soft Serv.	.77 ea.	.77 ea.	Unspecified.
		+ shpg.	
Computer/Computer	.99 ea.	.99 ea.	Unspecified.
DISK WORLD	.89 ea.	.92 ea.	Wabash Datatech

The real truth about \$1.00 or less diskettes.

It costs all diskette manufacturers about the same to produce a diskette. Some may charge more because they want to project a "premium quality" image, ala the late, lamented Dysan who bought their basic media from 3M.

Some charge less because they sell a sub-standard product... and we're not foolish enough to name names here.

But here's the truth about the \$1.00 or less diskette market.

It falls into four categories:

1. The DISK WORLD's of the universe who simply are so big that they can buy first quality product in massive quantities and choose to pass on the savings to you. (Precision Data and Diskette Connection on BRAND NAME products also fall into this category.)

2. The people who buy "cosmos"... stuff from major manufacturers that usually hits quality control standards, but is cosmetically blemished and thus can't be packaged and sold under the manufacturer's own name.

3. "Duplicator Quality". Uncertified media, usually below manufacturer's own standards and frequently below ANSI and IBM standards. Sold on an "as-is" basis with the understanding that the manufacturer's name will never be divulged. Usually about a 20% reject rate... as compared to DISK WORLD's standard of less than 1/1000th of 1% reject/return rate. Next to garbage, this is the source of most diskettes advertised at a dollar or less.

They may work... and then again they may not. (Frankly, the odds at the Blackjack table in Las Vegas are more in your favor.)

4. Garbage. Stuff that shouldn't be sold at all. But some manufacturers are hurting for cash, so they sell it anyway. (After all, they want to meet their payroll. Look what happens when you don't: you become a Dysan or Verbatim. Lots of history, but no money.) More and more garbage is being dumped into the market as manufacturers become pressed for cash and are motivated into selling anything and everything they can manufacture. (Read the article in FORBES about Verbatim and its "Bonus" brand.)

Finally, the Taiwanese counterfeiters are moving into the act. Perfect duplicates of the packaging of major manufacturers with one exception: the quality isn't there.

The Critical Factor.

Only DISK WORLD!, Inc. offers fully brand-identified, LIFETIME-WARRANTY product for less than a dollar.

Every one else offering 5.25" product for less than a buck doesn't tell you who makes it.

We do.

And that ought to tell you a lot right there.

Ordering & Shipping Instructions

SHIPPING: Wabash Pinnacle Diskettes are sold in multiples of 100 only. Shipping charges are \$3.00 per 100, regardless of type or size.

PAYMENT: VISA, MASTERCARD and PREPAID orders accepted. Corporations rated 3A2 or better and government and quasi-government open accounts are accepted on a NET 15 basis.

C.O.D. orders are subject to a \$5.00 special handling charge. (Sorry for the increase, but too many people have been refusing C.O.D. orders or using bad checks. It's a classic example of a few "bad eggs" making life more expensive for everyone else.)

APD, FPO, AK, HI & PR ORDERS: Include shipping as shown and an additional 5% of the total amount of the order to cover PAL and insurance.

No other non-continental U.S. orders are accepted.

TAXES: Illinois residents only, add 7%.

MINIMUM ORDER: \$35.00

All orders subject to acceptance.
Not responsible for typographical errors.

ORDERS ONLY:

1-800-621-6827

(In Illinois: 1-312-256-7140)

INQUIRIES & INFORMATION

1-312-256-7140

FOR FASTEST SERVICE, USE MCI MAIL:

Just address "DISKORDER"

(24-hour shipping on any item in stock
if you order via MCI MAIL.)

DISK WORLD!, Inc.

629 Green Bay Road
Wilmette, Illinois 60091

MICROCOMPUTER CONCEPTS

13772 GOLDENWEST ST., SUITE 236

WESTMINSTER, CA 92683

MODEMS

Anchor Mark XII 300/1200 Smartmodem	229.
Anchor Volksmodem 12 w/Cable	199.
Hayes 300 w/Smartcom for Apple IIc	159.
Hayes 1200 Smartmodem	379.
Hayes 2400 Smartmodem	599.
Hayes 1200B Smartmodem for IBM w/Smartcom II	359.
Micromodem IIe w/Software	139.
Novation Applecat II	195.
Prometheus 1200 Promodem	285.
Prometheus Options Processor for Promodem 1200	79.
Prometheus 1200A Internal Modem for Apple w/Software	299.
Prometheus 1200B Promodem Internal Modem for IBM w/Software	259.
Smart Team 1200 Baud	199.
USA Courier 2400	389.

SOFTWARE

1st Base (Mac)	129.
Appleworks //e	199.
Asci Express Pro IBM	109. AP 75.
Autocad Drafting Package	CALL
Bank Street Speller	43.
Bank Street Writer (Apple)	43.
Copy II+, PC, Mac	25.
Dbase II	285.
Dbase III (IBM)	369.
Dollars & Sense (Apple II+)	69.
Flight Simulator II	33.
Framework (IBM)	379.
Harvard Total Project Manager	249.
Hitchhiker's Guide to the Galaxy (Apple, IBM & Mac)	29.
Home Accountant (Apple)	49.
Jazz	359.
Knowledge Man	279.
Lotus 1-2-3	295.
Mac Basic	86.

Mac Chart	72.
Mac Word or File or Multiplan	114.
Managing Your Money	105.
Millionaire (Apple)	39.
Multimate (IBM)	229.
Multiplan (Apple)	59.
Norton Utilities	51.
PFS: File or Graph or Report or Write IBM	79. Apple 69.
Printshop (Apple)	32.
Printshop Graphics Library Disk 1 or 2	19.
Pro Key (IBM)	69.
Rbase 5000	359.
Sidekick (IBM)	35.
Sideways (Apple, IBM)	35.
Symphony	399.
Typing Tutor III (Apple)	32.
Wordperfect 4.0	229.
Wordstar (IBM)	189.
Wordstar 2000	249.
Wordstar 2000+	289.
Wordstar Pro (IBM)	259.

Let Your Computer
talk to
Our Computer

BULLETIN BOARD

Free Software, Messages,
Current Prices, Fun & Games
Now Running on our New
IBM Compatible System



RBBS #

714-896-0775



Ultraterm

\$179

40-80-96-160 col for II, II+,
//e, w/SS & Inverse

COMPUTERS

CALL for the BEST PRICE
on the configuration that
Best Suits Your Needs!

IBM, Apple, Compaq, Macintosh,
Kaypro, Sanyo and Zenith

PRINTERS

Brother HA-15XL 17 Cps	349.
C. Itoh 8510AP Prowriter	299.
C. Itoh 8510 + 120 Cps NLQ	319.
Epson FX 85+ 160 Cps	359.
Epson FX 185	499.
Nec 3550 for IBM	1079.
Nec 2050 (IBM)	679.
Nec 8850	1499.
Okidata 182P	219.
Okidata 192P	349.

Okidata Apple 92 (Imagewriter Compatible)	439.
Okidata 193P	499.
Panasonic 1091 120 Cps & NLQ	239.
Panasonic 1092, 160 Cps w/Push Tractor	359.
Panasonic 1093, 160 Cps 15"	439.
Silver Reed Exp-550 19 Cps/132 Col	399.
Silver Reed Exp-770P 36 Cps	699.
Star SG-10 NLQ 120 Cps	219.
Star SG-15	369.
Toshiba 351	1169.

MONITORS

Amdak 310A Amber for IBM	144.
Amdak 300A Amber	124.
Amdak 300G Green	124.
Amdak Color 300, Composita w/Sound	229.
Amdak Color 600 Hi Res RGB	399.
Zenith Amber or Green	85.
Zenith Hi Res Color	409.
Princeton Graphics HX-12	439.
Princeton Graphics SA 12	589.

64K MEMORY \$9

256K MEMORY \$36

IBM COMPATIBLE HARDWARE

Asst Six Pack + 64K w/Sidekick	239.
Asst Six Pack + 384K w/Sidekick	275.
Floppy Disk Drive Controller	59.
Hercules Color Card	149.
Hercules Graphics Card	289.
20 MB Internal Hard Drive	599.
Paradise 5-Pack (Multi-Function)	159.
Paradise Modular Graphics Card	259.
135W Power Supply	89.
Quadram Quadboard EX	179.
STB Graphics Plus II	259.
Tandon TM-100-2 Disk Drive	115.
Teac 55B Disk Drive	95.
10 Meg Internal Hard Drive System	469.
Monochrome Graphics Card	169.

APPLE COMPATIBLE HARDWARE

16K Ram Card for II+	39.
80 Col Card for II+	69.
80 Col Card for IIc	39.
Als Z-Engine CPM System for the II+, IIc	125.
Dana-Fan (Same as System Saver)	29.
Dumping GX Printer Interface w/Graphics	65.
Extended 80 Col Card for IIc (80 Col + 64K)	89.
Grappler+ Printer Interface Serial or Parallel w/Cable	79.
Buffered Grappler+ 16K	149.
Buffered Grappler+ 64K	159.
Grappler C	85.

Graphics Printer Interface	59.
Hayes Mach III Joystick	36.
Hensington System Saver Fan w/Surge Suppressor	59.
Koolaid Pad IIc, IIc	77.
Microsoft IIc Premium Softcard	249.
Mitac Disk Drive II+, IIc	129.
Mitac Disk Drive for IIc	135.
Mocking Board	89.
Micro-Sci A2 Disk Drive	159.
RF Modulator	19.
Super Serial Card for Modems/Printers	89.
Thunderbolt Plus	109.
Titan Accelerator IIc	219.
Versacard	125.
Videx Ultraterm	189.
Videx Videoterm	169.
Wild Card 2	119.

384K Multi-Function Card IBM Compatible

with Parallel, Serial Game Port,
Clock, Calendar \$199

UPGRADE YOUR PC

to an XT \$469
10 Meg Internal Hard Drive
for IBM's and Compatibles

Cooling Fan \$29

w/Dual Outlets, Surge Protection
& Lighted Front Switch for Apple

★ MAIL ORDER ★

AD COPY DUE EARLY —

Call us LAST for
our latest LOW PRICES!

10/85

FOR ORDERS OUTSIDE CALIFORNIA, CALL:

800-772-3914

INFORMATION & ORDERS INSIDE CALIFORNIA, CALL:



714-898-3002



TERMS: Prices are F.O.B. Westminster, CA. For fastest service use C.O.D. Visa, MasterCard, money orders, certified or cashiers' checks. All prices are cash, add 2% for Visa, MasterCard and Purchase Orders. Purchase orders accepted on approval only. Prices are subject to change, and usually go down. This ad is prepared two months in advance, so please call for latest prices. Products carry manufacturers' warranty. Price is a suggested retail price.

COMPUTER MAIL ORDER

SPECIAL

THIS MONTH'S SPECIAL!

μ-SCI
MICRO-SCI

10 Meg Internal (IBM)

\$399.00

20 Meg Internal (IBM)

\$569.00

ORDER LINE

1-800-233-8950
In PA 1-800-242-4215

**CUSTOMER SERVICE
AND
TECH SUPPORT**
1-717-327-1450
Dept. A511

MAILING ADDRESS

Computer Mail Order
Dept. A511
477 East Third Street
Williamsport, PA 17701



MEMBER DIRECT MARKETING ASSOCIATION

CREDIT CARDS



SHIPPING

Add 3%, minimum \$5.00 shipping and handling on all orders. Larger shipments may require additional charges.

All items subject to availability and price change.

Returned shipments may be subject to a restocking fee.

CANADIAN ORDERS

1-800-268-3974
Ontario/Quebec

1-800-268-4559
Other Provinces

1-416-828-0866
In Toronto

TELEX: 06-218960

2505 Dunwin Drive,
Mississauga, Ontario
Canada L5L1T1

All prices shown are for U.S.A. orders.
Call The Canadian Office for Canadian prices.

PRINTERS

Canon
PRINTERS

A40.....CALL
LBP-8A1 Laser.....CALL

CITIZEN

MSP-10 (80 col.).....\$279.00
MSP-15 (132 col.).....\$389.00
MSP-20 (80 col.).....\$349.00
MSP-25 (132 col.).....\$509.00

CITIZEN

Prowriter 8510 NLQ.....\$329.00
Prowriter 1550.....\$449.00
Starwriter 10-30.....\$459.00

corona

Lazer LP-300.....\$2799.00

DIABLO

D25 Daisywheel.....\$549.00
630-109 Daisywheel.....\$1749.00
D80IF Daisywheel.....CALL

daisywriter

2000.....\$749.00

EPSON

RX-100, LX-80.....CALL
FX-85, FX-185.....CALL
LQ 1500, JX80 Color.....CALL
Homewriter 10.....CALL
NEW! LX-90, SQ-2000, DX-10, DX-20, HS-80.....CALL

JUKE

6000 Letter Quality.....CALL
6100 Letter Quality.....CALL
6200 Letter Quality.....CALL
6300 Letter Quality.....CALL

NEC

8027 Transportable.....\$299.00
2000 Series.....\$699.00
3000 Series.....\$1099.00
8000 Series.....\$1499.00
ELF 360.....\$449.00
Pinwriter 560.....\$999.00

OKIDATA

84, 92, 93, 182, 192, 193
2410, Okimate 20.....CALL

OLYMPIA

Needlepoint Dot Matrix.....\$289.00
Compact RO.....\$289.00
Compact 2.....\$349.00

Panasonic

KX1091.....\$259.00
KX1092.....\$389.00
KX1093.....\$479.00

QUADRAM

Quadjet.....\$399.00
Quadlaser.....CALL

SILVER-REED

500 Letter Quality.....\$279.00
550 Letter Quality.....\$419.00
770 Letter Quality.....\$759.00

star

SB/SD/SG/SR.....CALL
Powertype Letter Quality.....CALL

Texas Instruments

T1850.....\$529.00
T1855.....\$799.00
T1865.....\$1049.00

TOSHIBA

1340 (80 Column).....\$589.00
P351 (132 Column).....\$1149.00

DISKETTES

maxell.

3 1/2" DS/DD.....\$54.99
5 1/4" MD-2.....\$23.99
5 1/4" MD-2-HD (for AT).....\$44.99

Verbatim.

5 1/4" DS/DD.....\$24.99

Dennison

5 1/4" DS/DD.....\$16.99
5 1/4" Premium.....\$22.99

MULTIFUNCTION CARDS

AST

Six Pack Plus.....\$239.00
Mega Plus II.....\$269.00
I/O Plus II.....\$139.00
Advantage - AT.....\$399.00
Graph Pak/64K.....\$599.00
MonoGraph Plus.....\$399.00
Preview Mono.....\$299.00
PC Net Cards.....\$379.00
5251/11 On-line.....\$669.00
5251/12 Remote.....\$579.00
3780.....\$639.00

dca

IRMA 3270.....\$879.00
IRMA Print.....\$999.00

EVEREX

Graphics Edge.....\$299.00
Magic Card II.....\$179.00
Edge Card.....\$299.00

HERCULES

Graphics.....\$299.00
Color.....\$159.00

IDEA Associates

IDEAmax - ZPR, 64K, C, S, P.....\$229.00
IDEAminimax - MPR 128K.....\$229.00
IDEA 5251.....\$699.00

MYLEX

The Chairman.....\$479.00

PERSYST

Bob Board.....\$389.00

PARADISE

Modular Graphics Card.....\$279.00
Multi Display Card.....\$229.00
Five Pack C, S.....\$159.00

SIGMA DESIGNS

Color 400.....\$579.00

TECMAR

Captain - 64.....\$199.00
Captain Jr. 128K.....\$279.00
Graphics Master.....\$469.00

QUADRAM

Quadport-AT.....\$119.00
Quadmeg-MT (128K).....\$349.00
The Gold Quadboard.....\$449.00
The Silver Quadboard.....\$239.00
Expanded Quadboard.....\$219.00
Quad 512 +.....\$229.00
Liberty.....\$309.00
QuadSprint.....\$499.00
QuadLink.....\$399.00
QuadColor.....\$199.00
QuadJr. Expansion Chassis.....\$469.00
Expansion Chassis Memory.....\$199.00
Chronograph.....\$79.99
Parallel Interface Board.....\$64.99

BEST PRICE SOFTWARE

LOTUS 1-2-3.....\$309.00
WORD PERFECT.....\$219.00
CHARTMASTER.....\$229.00
ASHTON-TATE dBase III.....\$399.00
THINK TANK.....\$109.00
INTUIT Intergrated.....\$69.99

MODEMS

ANCHOR

Volkmodem 300/1200.....\$189.99
Mark XII (1200 Baud).....\$259.00
Signalman Express.....\$299.00
Lightning 2400 Baud.....\$399.00

Novation

J-Cat.....\$99.99
Smart Cat Plus.....\$319.00
Novation 2400.....CALL

Hayes

Smartmodem 300.....\$139.00
Smartmodem 1200.....\$389.00
Smartmodem 1200B.....\$359.00
Smartmodem 2400.....\$629.00
Smart Com II.....\$89.99
Chronograph.....\$199.00
Transet 1000.....\$309.00

AST

Reach 1200 Baud Half Card.....\$399.00

PC COMPATIBLES

IBM PC SYSTEMS

Configured to your specifications.

Call for Best Price!

PC Compatibles from:
ITT, Sanyo, Zenith,
AT&T, Corona, Kaypro,
& Zenith

MONITORS

AMDEK

300 Green.....\$129.00
300 Amber.....\$139.00
310 Amber IBM-Plug.....\$169.00
Color 300 Composite.....\$179.00
Color 500 Composite/RGB.....\$389.00
Color 600 Hi-Res (640x240).....\$399.00
Color 700 Hi-Res (720x240).....\$499.00
Color 710 Long Phosphor.....\$579.00
Color 722 IBM Enhanced.....\$579.00

NAP

12" Amber/Green TTL.....(ea.) \$119.00
12" Amber/Green Comp.....\$99.99

NEC

JB 1260 Green.....\$59.99
JB 1201 G/1205A.....(ea.) \$99.99
JB 1270.....\$139.00
JB 1275.....\$149.00
JB 1280 G TTL/1285 A TTL.....(ea.) \$149.00
JC 1460 Color.....\$269.00
JC 1410 RGB.....\$669.00

PRINCETON

MAX-12E Amber.....\$179.00
HX-9 9" RGB.....\$469.00
HX-9E Enhanced.....\$519.00
HX-12 12" RGB.....\$469.00
HX-12E Enhanced.....\$559.00
SR-12 Hi-Res.....\$599.00
SR-12P Enhanced.....\$649.00

TAXAN

121 Green TTL.....\$139.00
122 Amber TTL.....\$149.00
420 Hi-Res RGB (IBM).....\$429.00
440 Ultra Hi-Res RGB.....\$559.00

QUADRAM

8400 Quadchrome.....\$479.00
8410 Quadchrome II.....\$429.00
8420 Amberchrome.....\$179.00
8500 Quad Screen.....\$1499.00

ZENITH

ZVM 1220/1230.....(ea.) \$99.99
ZVM 1240 IBM Amber.....\$149.00
ZVM 131 Color.....\$249.00
ZVM 133 RGB.....\$429.00
ZVM 135 RGB/Color.....\$459.00
ZVM 136 RGB/Color.....\$599.00

TOLL-FREE 1-800-233-8950

Integrated Business Accounting System Complete for Only \$1995.00



EPSON® RX-80™

IBM®

Personal pearl™

Integrated Accounting \$:
A Business PEARL

pearlsoft

Hardware:

- * IBM PC-XT compatible computer, the GT-XT, with a ten megabyte hard disk and full color graphics capabilities.
- * Comes with your choice of a Comrex 5650-A amber monitor or an Amdek 300A high resolution green monitor with anti-glare screen. The cable is included.
- * Includes an Epson RX 80 high speed printer with correspondence quality and graphics capabilities. This page was printed using it.
- * The computer comes with 256K of RAM, a 360K floppy, a heavy duty power supply, a parallel printer port, eight expansion slots and the ability to network and run other PC programs. Easily expandable.
- * Includes all the cables and connectors needed.
- * Retail price for the computer hardware alone is \$2495.00.

Accounting Software:

- * The Integrated Accounting system by Pearlsoft.
- * Includes general ledger, accounts receivable, accounts payable, inventory, and payroll.
- * Comes with Flexset, the ability to easily change your forms and reports to meet your needs. Customize as your business grows.
- * The documentation comes in two 300 page manuals with many examples and easy to follow instructions.
- * Retail price for the package is \$995.00.

Data Base Software:

- * Personal Pearl data base from Pearlsoft, a best selling data base designed for business use.
- * Works well with Integrated Accounting.
- * Keeps separate mailing lists, appointment books, lists of contacts, etc.
- * Easy to learn with complete manual.
- * Retail cost \$295

Other Software:

- * IBM PC-DOS 2.1 with manual and utilities.
- * Wolfcalc, and easy-to-use electronic spread sheet for financial modeling, etc.
- * Utilities with memory test, RAM disk, backup, restore, and others.
- * Retail value approximately \$150.00

Overall Value:

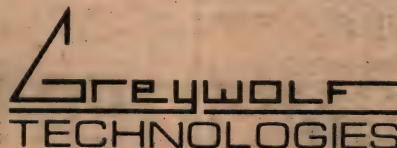
- * Total value of package \$4,334.00.
- * Nothing on the market compares.
- * A sophisticated business computer system for less than half price.

Ease of Use Built In:

- * Software comes loaded on hard disk, no need to install it.
- * System boots from the hard disk, just flick the power switch on and the programs start.
- * Menu driven, just choose which program you want and it starts automatically.

Service and Support:

- * 90 day parts and labor guarantee.
- * After warranty service available from hundreds of computer service centers or directly from Greywolf. Customers get a 10% reduction in service rates on all equipment purchased through Greywolf.
- * Telephone support for set-up.
- * Technical support available.
- * Extended warranty available covering all parts and labor.
- * Discounts for quantity purchases, qualified dealers, Fortune 1000 and accredited educational institutions.



18 DOG LANE • STORRS, CONNECTICUT • 06268

CALL (203) 429-9209

IBM is a registered trade mark of International Business Machines Corporation.
Epson is a trade mark of Epson Corporation of America.
Personal and Pearl Integrated Accounting are trade marks of Pearlsoft, Inc.

Terms: Allow 3 weeks for personal checks to clear.
Mastercard & Visa add 3%
Add \$25.00 for shipping, handling and insurance
CT residents add 7.5% sales tax

QuantumTM XT \$945.00!!!

IBM XT Compatible

SO MUCH FOR SO LITTLE...

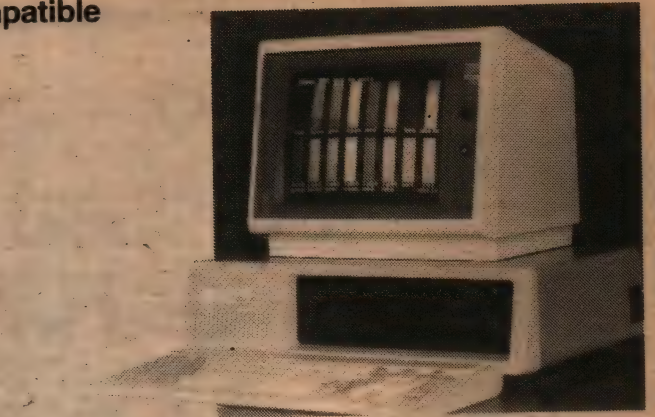
**Fully IBM compatible Quantum PC/XT
By AFTON COMPUTER!!!**

- 8 I/O Slots
- 256K RAM on board, expandable to 640K
- 130W Power Supply
- 2 DS/DD Mitsubishi Floppy Drives
- Color or Mono Card
- 84 Key-Key Board
- Mono Monitor
- 1 Parallel Port
- Fully Tested & Assembled and 48 Hour Burned-in with 90 Days Parts & Labour Warranty.

QUANTUM PC/XT-10MB \$1439.00

QUANTUM PC-TURBO WITH 4.77/8.0 Mhz
dual clock operation, 256k on board
(up grade to 1MB on board), 2 DS/DD, FDC,
Color or Mono card, Mono Monitor

ALL FOR ONLY \$1250.00

QuantumTM AT

CALL FOR PRICES.

IMMEDIATE DELIVERY

!!!PRICE BUSTERS!!!

**10MB 1/2 HEIGHT RODEM HARD DISK + W.D. CONTROLLER
ONLY \$489.00!!!**

1/2 Height DS/DD MITSUBISHI Floppy Drives	\$ 90.00
Color Card	\$ 99.00
Mono Card	\$ 99.00
130W Power Supply	\$ 89.00
Computer Case	\$ 69.00
Floppy Controller	\$ 58.00
84 Key-Key Board (5150 TYPE)	\$ 79.00
384K Multifunction card (OK)	\$145.00
QUANTUM PC/XT MOTHER BOARD (OK)	\$199.00
Mono Monitor	\$ 99.00

AFTON COMPUTER INC.

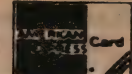
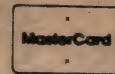
24725 CALLE EL TORO GRANDE
EL TORO, CA 92630.
TEL # (714) 259-1127

**REGIONAL DISTRIBUTORS
DEALERS AND OEM
WELCOME**

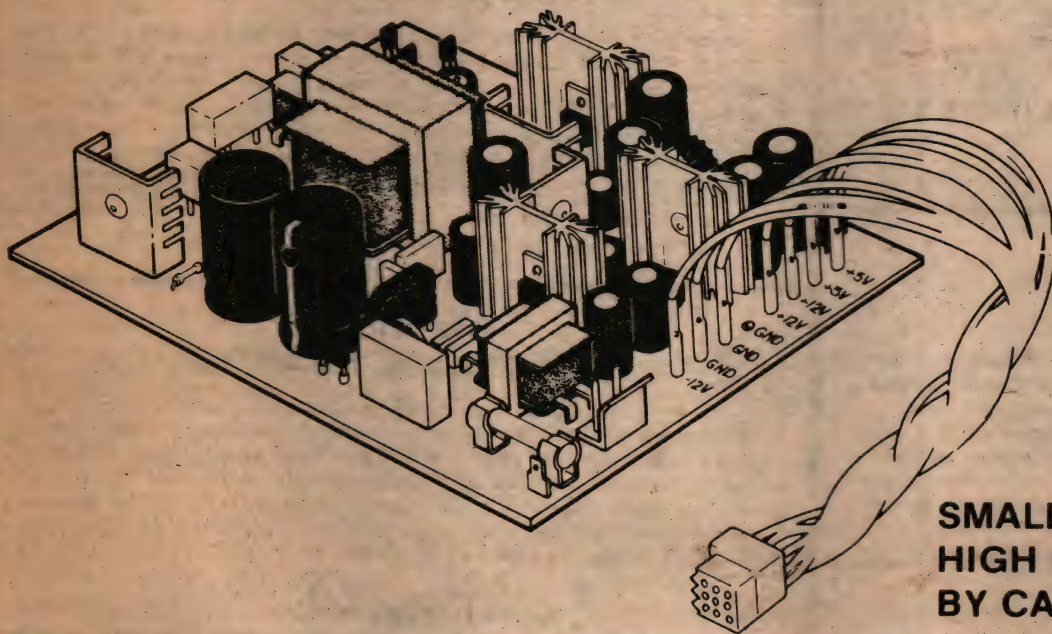
B. G. MICRO

P. O. Box 280298 Dallas, Texas 75228

(214) 271-5546

**Big Computer Mfg. Makes \$900,000 Goof!!****COMPUTER/DISK DRIVE
SWITCHING POWER SUPPLY****ORIGINAL
OEM COST
\$72 EACH!****ORIGINALLY DESIGNED TO RUN A Z-80
BASED SINGLE BOARD COMPUTER
WITH TWO 5-1/4 IN. DISK DRIVES AND
CRT MONITOR.****BRAND NEW: UNUSED!****\$24⁹⁵** EA**NEW
PRICE**

ADD \$1.50 PER UNIT FOR UPS



SPECS: + 5VDC 5 AMPS MAX
 #1 + 12 VDC 2.8 AMPS MAX
 #2 + 12 VDC 2.0 AMPS MAX
 -12 VDC .5 AMPS MAX

INPUT: 115 or 230 VAC 60Hz

CAN EASILY BE MODIFIED TO
GIVE 24V @ 1.5 AMP

**SMALL SIZE: 6-1/8 x 7-3/8 In.
 HIGH EFFICIENCY SWITCHER MFG.
 BY CAL. DC IN USA!**

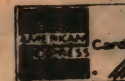
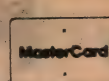
The poor Purchasing Agent bought about 10 times as many of these DC switchers as his company would ever use! We were told that even in 10,000 piece lots they paid over \$72 each for these multi-output switchers. When this large computer manufacturer discontinued their Z-80 Computer, guess what the Big Boss found in the back warehouse; several truckloads of unused \$72.00 power supplies. Fortunately we heard about the deal and made the surplus buy of the decade. Even though we bought a huge quantity, please order early to avoid disappointment. Please do not confuse these high quality American made power supplies with the cheap import units sold by others.

TERMS: (Unless specified elsewhere) Add \$1.50 postage, we pay balance. Orders over \$50.00 add 85¢ for insurance. No C.O.D. Texas Res. add 6-1/8% Tax. 90 Day Money Back Guarantee on all items. All items subject to prior sale. Prices subject to change without notice. Foreign order - US funds only. We cannot ship to Mexico. Countries other than Canada, add \$3.50 shipping and handling.

B. G. MICRO

P. O. Box 280298 Dallas, Texas 75228

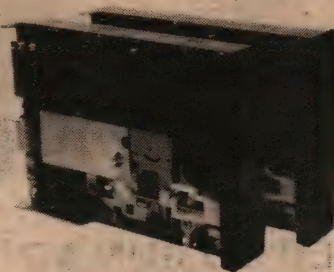
(214) 271-5546



WE'VE GOT EM!

5-1/4" HALF SIZE DRIVES!

For IBM PC, TI PC,
XEROX 820



- 40 Track per side
48 TPI

- Double-sided,
double density
- Same as SA455
- Latest head &
drive technology
- Fast access time

*Two of These Half Size Drives will
Fit in the Same Space as 1 Full Size Drive!

\$69.95 2 / \$129.95

ADD \$3.00 UPS PER DRIVE

- 80 Track per side
96 TPI

- Double-sided,
quad density
- Same as SA465
- Latest head &
drive technology
- Fast access time

*Two of These Half Size Drives will
Fit in the Same Space as 1 Full Size Drive!

\$99.95

ADD \$3.00 UPS PER DRIVE

MANUAL FOR EITHER DRIVE \$12.50

400/800 CASSETTES

REQUIRES ATARI RECORDER

We bought 5 skids of these cassettes. Titles include: *Touch Typing, Invitation to Programming I & II, Hangman, Introduction to Sound, Blackjack, Juggles House, Juggles Rainbow, Introduction to Graphics, States and Capitals, European Countries and Capitals, Scram and Writing Programs Two*. These are a very high quality recording tape and may be recorded over for excellent reproduction. Most come in cassette holders. Sorry, no choice on titles. Super good assortment (some duplications when necessary). Most C-60. May be last chance to obtain these.

12/\$15.00 or 24/\$25.00

SERIAL ASCII KEYBOARD

\$14⁹⁵
Each



4
for
\$49⁹⁵

This is no misprint!

Maxi Switch 67 Key (includes 10 function keys) QWERTY serial keyboard. Number KYBD2185010 keyboard which uses a CMOS 8048 single chip microprocessor for super low power consumption. Very high quality with an exceptionally smooth feel. Originally designed for use in a portable computer. Simple serial interface — complete documentation included — Size: 12" x 5 1/2"

These won't last long at this price!!!!

ATARI 5200 GAME BOARD

This is the second generation video game board that replaced the Atari 2600. We are offering the complete board assembly with all components and I.C.'s, but less the plastic outer case. Includes 8 -16K RAM chips and 5 L.S.I. chips all socketed. The Atari part numbers for the L.S.I. chips are CO14806-03, CO19156-05, CO12294B-01, CO12296D-22 and CO14805-22. These chips are the GTIA, ANTIC, CPU, POKEY and ROM. These are complete units that we are selling as is — no warranty — primarily for spare parts. Units may or may not work. We have no data or schematics.

\$14.95 3/\$40.00

Include \$2.00 each for shipping

COMPUTER POWER SUPPLY BOARDS FOR THE ATARI 400 or ATARI 800

Contains various power supply components such as voltage regulators, filter cap, etc. Also includes a high quality R.F. video modulator. Compare video modulator alone at up to \$9.95. Brand New.

\$5.95each 2/\$10.00

Add \$1.50 each for shipping

ATARI MODEM BOARD

Apparently manufactured for Atari by Raycal-Vadic. P.C Board #81219-903 Rev. D. These are complete factory finished modem boards with all parts except the 8048 (8748) C.P.U. chip, for which there is a socket. Includes the popular T.I. TMS99532 modem chip which is socketed. This T.I. chip alone lists for as much as \$29.95 at some of our competitors. These are factory new boards with all connectors, switches, relay, etc., but are sold as is — no warranty or data. Super limited quantity.

DIRECT
CONNECT

\$9.95 3/\$25.00

Add \$1.50 each for shipping

VERY LIMITED QTY.
8048 For Above Board
\$10.00

ATARI VCS CARTRIDGE ADAPTOR

This unit was designed to allow playing the original Atari 2600 cartridges on the newer Atari 5200 game system. Unit contains, in sockets, 1-6507, 1-6532 and 1 - OKI MSM 3980 (CO10444-22), plus other assorted parts. These are factory new units, but we must sell them as is, without any warranty or documentation, since we don't have facilities to test them. Remember these are complete units and are a bargain if used just for replacement parts. Very limited stock. We reserve the right to limit quantities.

\$12.95 3/\$29.95

Add \$1.50 each for shipping

REPEAT OF SELL OUT! ATARI HEX KEYBOARD



\$7⁹⁵

3 for \$20⁰⁰

Add \$1.00 per unit
for postage.

Originally designed for use with an Atari Home Computer. Brand new in box. Encoded using the popular National Semi 74C923. Full schematic included. Originally sold for many times our price. Many applications besides computer use.

TERMS: (Unless specified elsewhere) Add \$1.50 postage, we pay balance. Orders over \$50.00 add 85¢ for insurance. No C.O.D. Texas Res. add 6-1/8% Tax. 90 Day Money Back Guarantee on all items. All items subject to prior sale. Prices subject to change without notice. Foreign order - US funds only. We cannot ship to Mexico. Countries other than Canada, add \$3.50 shipping and handling.

B. G. MICRO

P. O. Box 280298 Dallas, Texas 75228

(214) 271-5546



74LS

LS00	.15	LS163	.36
LS01	.15	LS164	.56
LS02	.15	LS165	.80
LS03	.15	LS166	.75
LS04	.16	LS169	1.00
LS05	.15	LS174	.35
LS08	.15	LS175	.35
LS09	.15	LS181	1.25
LS10	.15	LS191	.80
LS11	.15	LS192	.70
LS12	.25	LS193	.75
LS13	.30	LS194	.60
LS14	.25	LS195	.52
LS15	.30	LS196	.70
LS20	.15	LS197	.75
LS21	.18	LS221	.50
LS27	.21	LS240	.60
LS30	.15	LS241	.60
LS32	.20	LS242	.90
LS33	.25	LS243	.80
LS37	.30	LS244	.70
LS38	.25	LS245	.70
LS42	.30	LS251	.45
LS51	.20	LS253	.40
LS54	.25	LS257	.45
LS55	.20	LS258	.50
LS73	.30	LS259	1.00
LS74	.23	LS260	.40
LS85	.45	LS266	.30
LS86	.19	LS273	.75
LS90	.40	LS279	.30
LS93	.50	LS280	.80
LS107	.28	LS283	.35
LS109	.20	LS290	.70
LS112	.30	LS293	.75
LS122	.35	LS298	.65
LS123	.42	LS299	1.50
LS124	1.50	LS323	2.25
LS125	.30	LS348	.75
LS126	.40	LS364	.90
LS132	.40	LS366	.40
LS133	.25	LS367	.40
LS138	.35	LS368	.30
LS139	.33	LS373	.70
LS151	.40	LS374	.75
LS153	.33	LS375	.35
LS154	.75	LS377	.90
LS155	.42	LS378	.80
LS156	.42	LS390	.80
LS157	.33	LS393	.75
LS158	.40	LS399	1.00
LS160	.50	LS670	1.00
LS161	.40	25LS2569	1.50
LS162	.60		

TTL

7400	.22	7473	.28	74162	.50
7402	.22	7474	.30	74163	.50
7405	.22	7483	.45	74164	.70
7406	.23	7485	.55	74165	.70
7407	.23	7486	.30	74166	.90
7408	.24	7490	.35	74173	.75
7410	.17	7493	.30	74174	.70
7413	.33	7496	.30	74175	.80
7420	.22	74107	.20	74181	1.50
7425	.25	74109	.45	74185	1.70
7427	.25	74121	.27	74192	.70
7428	.25	74123	.40	74193	.80
7430	.15	74125	.40	74195	.80
7432	.20	74132	.40	74199	1.00
7433	.25	74148	.90	74221	.60
7440	.19	74151	.50	74273	1.75
7442	.35	74153	.35	74365	.60
7451	.18	74154	1.19	74366	.60
7453	.22	74157	.30	74367	.50
7454	.22	74160	.80	74390	1.40
7472	.20	74161	.50		

EPROM

2708 1KX8 450 n.s.	2.00
2758 1KX8 +5V 450 n.s.	2.00
2716 2KX8	
450 n.s.	2.50
2716-1 2KX8 350 n.s.	3.50
2732 4KX8 450 n.s.	2.50
2732A	3.25
2732A-35	3.00
2532 4KX8 450 n.s.	2.75
2764-25	2.10
2764-45	1.90
27128-25	2.65
27128-3	2.50
27256-150 n.s.	5.75

EPROM SPECIAL

We bought a large quantity of 2708s from a computer manufacturer who redesigned their boards. We removed them from sockets, erased and verified them, and now we offer the savings to you. Complete satisfaction guaranteed.

2708

\$1.20 or 10/\$8.00

STATIC RAM

2016-2KX8 200 n.s.	2.00
2101-1 - 256X4 500 n.s.	.75
21L02-1 350 n.s.	.65
2102AL-4 L.P. 450 n.s.	.49
2111-1 256X4 500 n.s.	1.00
2114L-3 1KX4 300 n.s.	.90
2125A-2 1KX1 70 n.s.	1.70
2142-3 1KX4 300 n.s.	1.20
2147 4KX1	3.95
TMS4044 4KX1	1.00
6116P-4-2KX8	2.00
6264-15	4.25

BAUD RATE GENERATOR

COM8116	4.95
INS8250B	6.95

DRIVERS & RECEIVERS

75107	.50
75110	.50
75451	.25
75452	.35

DYNAMIC RAM

2108-4 8KX1	1.50
2118-4 16KX1-5Volt	.70
4027-4KX1-250 n.s.	.80
4116-16KX1-250 n.s.	.60
4116-16KX1-200 n.s.	.75
4116 16KX1-150 n.s.	1.00
4164- +5v 64K 200 n.s.	.47
4164 150 n.s.	.60
TMS4416-16KX4-150 n.s.	3.50
MK4516-15 16KX1-5Volt	.70
5280N-5 (2107B-4 • TMS4060)	
4KX1	8/3.95
41256 150 n.s.	3.00

SPECIAL

AY3-8910
W/60 Page Manual
New Price — \$7.00

58167	5.00
58174	5.00
58321 Clock-Calendar	2.95

8000

Z8002	20.00	8085	3.00
8035	3.00	8086-2	24.95
8039	3.00	8087-3	100.00
8080A	1.25	8088	5.50

8200

8202A	8.00	8254	7.50
D8203-1	29.95	8255-5	3.25
8212	1.50	8257	6.00
8214	2.00	8259A	3.50
8216	1.75	8259C-5	5.00
8228	3.25	8275	14.95
8237-5	5.00	8279-5	5.75
8250B	6.95	8284	3.00
8251	3.00	8287	5.75
8253-5	5.50	8288	5.50

Z80

Z80 2.5 MHZ CPU	1.25
Z80CTC	.49
Z80DMA-DMA	7.00
Z80PIO	1.00
Z80SIO/O	3.50
Z80A-4MHZ CPU	1.99
Z80A-CTC	1.50
Z80A DART	7.00
Z80A-DMA	7.00
Z80A-PIO	1.59
Z80A SIO/O	4.59
Z80B 6 MHZ CPU	7.00

F.D. CONTROLLERS

1771 Single Density	10.00
1793 Special	10.00
1797	15.00
2793	12.50
2797	7.50

CONTROLLER SET

THREE CHIP SET
1797 or 1793, 2143-03, 1691
by W.D.
B.G. SPECIAL
All 3 for only \$16.00

UART

TR1602B (COM 2017)	1.75
IM6402-(1863)+5v High speed	
AY5-1013 pin out	2.95
INS 8250B	6.95

6800

6800	2.50	6840	6.00
6802	3.50	6845P	4.00
6803	3.00	6845S	7.50
6809EP	3.99	6850	2.60
6809P	3.50	6852	3.50
6810	2.00	68A09EP	3.99
6820	3.25	68A21	3.00
6821	1.50	68B45	10.00

6500

6502	2.00	6545	5.00
6522	3.50	6551	5.00
6532	5.00		

SPECIALS

8155	3.00
9216	4.00
TMS99532	15.00
BR1941L	5.95
LF353	.60
LF356	.60
TL494	2.50
LM555	.22
9401	5.00
DS8835	1.50
MC4024P	2.50
NE592	1.00
MC1350	1.00
LM2917	.50
LM339	.40

SOCKETS

Low Profile SOLDER TAIL

6 Pin	14/1.00
8 Pin	13/1.00
14 Pin	10/1.00
16 Pin	8/1.00
18 Pin	8/1.00
20 Pin	7/1.00
22 Pin	7/1.00
24 Pin	6/1.00
28 Pin	6/1.00
40 Pin	5/1.00

BUY \$10

GET \$1.00 - FREE CHOICE

2114 SPECIAL!

COMPUTER
MANUFACTURERS
EXCESS INVENTORY
SALE!

PRIME! 2114-300 n.s.
INCREDIBLE PRICE!

YOU SAVE!

50¢

GUARANTEED

CRYSTALS

32.768 Khz SPECIAL	.65
262.144	.75
300.000	.75
1.5432 Mhz	.75
1.8432	1.59
2.000000	2.49
2.560	1.49
3.000	1.15
3.120	1.20
3.2	1.49
3.4560	1.49
3.579545	.60
3.6864	1.10
4.000	1.75
4.194304	1.50
4.433618	.75
4444.000	1.25
4.9152	2.49
4.916 Bd. Rate	1.25
5.000000	1.50
5.0688	1.70
5.616	1.59
6.000	2.49
6.176	1.49
7.164112	1.00
7.3728	1.49
8.000	1.49
9.000	1.49
9.90000	1.25
10.69425	2.50
10.8864	1.49
10.920	1.49
11.088	1.59
12.000	2.00
13.440	1.00
14.31818	1.00
15.2	1.10
16.00000	1.50
16.5888	1.49
17.430	2.49
18.000	1.49
18.2259	1.00
18.4320	1.49
20.000	1.29
21.87108	1.00
22.092	1.00
32.000	2.49
40.000	2.00
87.3333	1.00
91.000	1.00
104.8	1.00

TERMS: (Unless specified elsewhere) Add \$1.50 postage, we pay balance. Orders over \$50.00 add 85¢ for insurance. No C.O.D. Texas Res. add 6-1/8" Tax. 90 Day Money Back Guarantee on all items. All items subject to prior sale. Prices subject to change without notice. Foreign order - US funds only. We cannot ship to Mexico. Countries other than Canada, add \$3.50 shipping and handling.

Arlington Computer Products gives you the best prices on IBM PCs...

IBM PC

2 Drives, 256K,
Monochrome Monitor **\$1925**

2 Drives, 256K,
Color Monitor **\$2149**

2 Drives, 256K,
10 MB Hard Disk,
Monochrome Monitor **\$2395**

IBM XT

1 Drive, 256K,
10 MB Hard Disk,
Monochrome Monitor **\$2549**

1 Drive, 256K,
10 MB Hard Disk,
Color Monitor **\$2795**

1 Drive, 256K,
20 MB Hard Disk,
Monochrome Monitor **\$2675**

IBM AT

Unenhanced **\$3095**

Enhanced
from factory **\$4395**

Enhanced by Arlington
512K, 20 MB Hard Disk,
1.2 Floppy **\$3795**

COMPAQ PORTABLES

2 Drives, **640K**
w/Clock
\$2125

1 Floppy, **640K**
w/Clock,
10 MB Hard Disk
\$2599

...CALL FOR QUOTES ON OTHER COMPAQ SYSTEMS...

SOFTWARE

LOTUS 123.....	\$299
SYMPHONY.....	\$409
WORDSTAR 2000.....	\$249
WORDSTAR 2000 PLUS	\$299
D BASE III	\$369
FRAMEWORK	\$369
PC MOUSE w/paint brush	\$119
HAYES SMARTCOM II	\$ 95
CROSSTALK	\$109

...and disk drives too!

IBM While supplies last ! **\$ 99.00**

TANDON TM100-2 **\$ 99.00**

SHUGART SA455 (1/2 HT.)... **\$ 79.00**

TEAC FD55B (1/2 HT.) **\$ 84.00**

360K DRIVE FOR AT..... **\$119.00**

10 MB HARD DISKS

FROM **\$429**

20 MB HARD DISKS from \$599

10 MB TAPE BACK UP \$479

AST 6 PACK

PARALLEL & SERIAL PORTS,
CLOCK/CALENDAR,
SOFTWARE AND 384K

ALL FOR JUST

\$259

GAME PORT FOR ABOVE \$39

QUADBOARD BY QUADRAM

CLOCK/CALENDAR,
PARALLEL & SERIAL
PORTS, GAME PORT,
SOFTWARE & 384K

\$239

MAGICARD BY EVEREX

CLOCK CALENDAR,
PARALLEL & SERIAL
PORTS, GAME PORT,
SOFTWARE & 384K

\$219

800-548-5105

PRINTERS

EPSON

LX80.....	\$229
LQ1500.....	Call
FX85.....	335
FX185.....	469

OKIDATA

ML192.....	\$359
ML193.....	499
84 IBM.....	649

TOSHIBA

1340.....	\$549
P351.....	1025

SILVER-REED

EXP 400.....	\$249
EXP 500.....	289
EXP 550.....	399
EXP 770.....	699

NEC 2050.....	\$639
3550.....	\$1025
P2..\$499 P3..	\$715

MONITORS

AMDEK

300 G	\$119	COLOR 600	\$399
300 A	\$139	COLOR 700	\$449
310 A	\$149	COLOR 710	\$539

TAXAN 440	& SUPER HI-RES BOARD	\$769	122 A	\$145
-----------	-------------------------	-------	-------	-------

PRINCETON

MAX 12	\$169
HX 12 RGB COLOR	\$419
SR 12 SUPER HI-RES COLOR	\$599

PERIPHERALS

HERCULES COLOR GRAPHICS.....	\$145
HERCULES MONO/GRAPHICS.....	\$289
TAXAN MONCHROME.....	\$139
EVEREX GRAPHICS EDGE.....	\$279
PERSYST COLOR GRAPHICS.....	\$125
TECHMAR GRAPHICS MASTER.....	\$449
AST ADVANTAGE.....	\$399

64K RAM CHIPS

9 for \$9

100	500	1000
.65	.60	.55
each	each	each

256 K CHIPS

\$5
each

MODEMS

HAYES

SMART MODEM 1200	\$379
SMART MODEM 1200B (with software)	\$339
SMART MODEM 2400	\$615

SOFTWARE

KEEP TRAK	\$39
HOME RECORD MANAGEMENT SYSTEM	
Sorts expenses for tax purposes, performs automated bank reconciliations and more!	

**Arlington
Computer
Products**

450 E. HIGGINS ROAD
ELK GROVE VILLAGE, IL 60007



FOR ORDERS & SYSTEMS QUOTES:

800-548-5105

FOR INFORMATION AND IN ILLINOIS CALL 312-228-6333

Prices and Availability Subject To Change Without Notice

BEST BUSINESS COMPUTER BUY IN THE U.S.



MidWest Micro-Peripherals
135 South Springfield Street, Saint Paris, Ohio 43072
Phone (513) 663-5488

Friends,

We understand your interest in obtaining IBM compatible computing power at an affordable price. We also understand your reluctance to take a chance on "sending good money after bad" by purchasing an unknown system of unknown quality. With this in mind, we have done your homework for you. We searched and tested until we found a compatible of exceptional quality complete with DOS and a user manual to help you get started.

Let's face it, all P.C. compatibles are not created equal to the original in quality. Therefore, we offer you a 14-day, refundable sale so that you can see for yourself the unbeatable quality our MW-XT offers. We at MidWest Micro think you have a right to demand this kind of security from any compatible distributor.

Happy computing and thank you for your continuing support of MidWest Micro.

Sincerely,

Mark Runkle
Pres. MidWest Micro

MW XT BASIC SYSTEM

Basic System Only **\$799**

- * XT Compatible Computer With 256K RAM
- * 8 full length expansion slots
- * 135 watt power supply with four cables
- * IBM style keyboard with lighted Num + Caps lock
- * Parallel Printer Port

Now you can get the most power,
dependability and compatibility for your money with our...

IBM XT® COMPATIBLE MW XT System Moneyback Guarantee

If you do not agree that your IBM XT® Compatible from MidWest Micro is the best business computer buy in the U.S. or if it fails to run any IBM software package "off the shelf", you may call MidWest Micro within 14 days for a full refund. (To qualify for refund, the system must be returned in like-new condition with all originally supplied materials and packaging).

**PLUS FULL
1 YR WARRANTY**



MW XT COMPLETE BUSINESS SYSTEM

LIST \$3295

ONLY **\$1399**

Buy 2
at \$1329
each

- * XT Compatible computer with 256K RAM
- * 8 full length expansion slots
- * 135 watt power supply with four cables
- * IBM style keyboard with lighted Num + Caps lock
- * Parallel Printer Port
- * Two 360K Floppy Disk Drives and Controller
- * Monochrome Monitor & Graphics Card
- * DOS 2.11
- * Newbase data management software (holds up to 32,000 records/file)
- * 6 outlet power management unit with surge protection and on/off switch
- * Box of 10 DS/DD Diskettes and an attractive smoked plexiglass Diskette Box.

COMPLETE

MW XT HIGH CAPACITY BUSINESS MANAGEMENT SYSTEM

LIST \$4295

ONLY **\$1799**

Buy 2 at
\$1749 each

- * XT Compatible computer with 256K RAM
- * 8 full length expansion slots
- * 135 watt power supply with four cables
- * IBM style keyboard with lighted NUM & Caps lock
- * Parallel Printer Port
- * One 360K Floppy Disk Drives and Controller
- * 10 Mb Hard Disk Drive
- * Monochrome Monitor & Graphics Card
- * 6 outlet power management unit with surge protection and on/off switch
- * DOS 2.11
- * Software Library
- * New Base Data Management Software (Holds up to 32,000 records/file.)
- * PC-Write Word Processing Software
- * Electronic Spreadsheet Program for business management
- * Box of 10 DS/DD Diskettes and an attractive smoked plexiglass Diskette Box.

© IBM XT IS REGISTERED TRADEMARK OF INTERNATIONAL BUSINESS MACHINES CORP.

Add Even More Power!!

- * Substitute 20 Mb for 10 Mb Hard Drive Just \$299.
- * Add 384K RAM (for total of 640K) plus a clock calendar added Parallel + Serial Port, Game Port attachment, RAM disk and print spooling software just \$199.



CALL TOLL FREE FOR INFORMATION OR ORDER

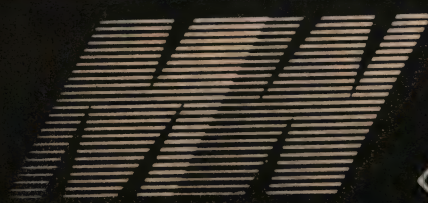
(800) 423-8215

IN OHIO, CALL - (800) 321-7731

HOT LINE: 513-663-4992

(FOR TECHNICAL ASSISTANCE OR INFORMATION ON YOUR ORDER)

MONDAY - FRIDAY
9 AM - 6 PM (EST)
SATURDAY 10 AM - 4 PM
PRICES SUBJECT TO CHANGE,
AVAILABILITY AND TYPE ERRORS



MidWest Micro-Peripherals

135 S. Springfield St., Saint Paris, Ohio 43072

All equipment shipped factory fresh with manufacturers warranty

HIGH TECHNOLOGY — NOT HIGH PRICES

COMMODORE

Inside Commodore

by Ted Drude

The Wild World of Commodore Servicing

When your computer, disk drive, or printer is on the blink, it can be an irritation or worse. The more you use your system, and depend on it, the less you can afford to have it "down." Because servicing, or getting service for, Commodore computers is not always easily understood by new (or even experienced) users, I felt it was worth looking into this month.

We are going to look at servicing your Commodore from two aspects: factory/dealer service and doing it yourself. The "pros and cons" won't be discussed because you probably already know whether or not you're up to servicing the system yourself. If you are trying to understand the "Factory Service Game" (as I call it), this article should help you understand your options. If you are wanting to service your computer yourself, I'll provide some service hints and typical trouble-shooting items to check for.

An Upcoming Project - Hard Disk Interface

All of you who've written me in the past few months requesting an interface circuit for floppy and hard disks, I've got good news. We're in the planning stages of such a project. At this point, we're still making preliminary decisions about the host hardware/software interface and how it will be distributed when finished.

We now need some help from our readers. What I have in mind is a combined 10 Meg Winchester/800K floppy system for the C-64. Using new parts, I estimate its cost at \$700 or so. Using surplus parts and a smaller hard disk, you might be able to keep it under \$500. Does this sound like something you would buy?

Please write me C/O the Computer Shopper (PO Box F, Titusville, FL 32781), and let me know what you think about this. You don't need to write a thesis, just a post card or short note is fine. To those of you who have already written, thanks for the encouragement. As things progress, you can rest assured that Computer Shopper readers will get all the information on this project firsthand.

"Kernal" or "Kernel": Why Can't Commodore Spell?

Here's an interesting piece of trivia:

Dear Ted,

One thing I'd love to know...Why does Commodore misspell "KERNEL"? Are the people at Commodore less literate than some? Or, is it an acronym?...Every time I see "KERNAL," it bothers me. "Dr. Dobbs" even had it on their front cover!...

Nicholas Bodley
New York City

Well, Nicholas, you are astute in your observation about the misspelling of the word "kernel." I can't answer for Dr. Dobbs' Journal or anyone else, but I do know that Commodore deliberately uses the "KERNAL" spelling in their literature. As far as I know, they originated this spelling. The first time I saw it was in the VIC-20 Programmer's Reference Guide (pg. 182) and the C-64 Programmer's Reference Guide (pg. 268).

Normally, the main routines of an operating system are referred to as the "kernel" or central core of the system. Commodore uses "Kernal" to refer to the whole thing, including the jump tables. As Commodore expert Jim Butterfield puts it in his "Machine Language for the Commodore 64":

"The original meaning of the term *kernal* seems to be lost in legend. It was originally an acronym, standing for something like "Keyboard Entry Read, Network, and Link." Today, it's just the label we apply to the operating system that makes the screen, keyboard, other input/output and control mechanisms work together. To describe this central control system we might choose to correct the spelling to get the English word "kernel." For now, we'll use Commodore's word."

Burning Your Own KERNAL or BASIC ROM

Here's another letter I received recently:

Hello,
I recently saw a letter or comment printed in...a (Commodore) magazine. In it, reference was made to a (an EPROM) chip...that was a pin-for-pin substitute for the

C-64 KERNAL ROM, the idea being that you could burn your own PROM and use it instead. Can you identify this part?...

Jeff Jourard

Santa Monica, Ca

Jeff, what you are looking for is a 2564 EPROM. Don't confuse this with the more popular 2764 chip. The pinouts are totally different. The 2564 is an 8k EPROM that is pin compatible with the 2364A ROMs that Commodore uses for its BASIC and KERNAL ROMs. If you have an EPROM programmer that can burn 2564s, you're in business. One source for the 2564 is:

JDR Microdevices
1224 S. Bascom Ave.
San Jose, CA 95128
(800) 538-5000 (Outside CA)
(800) 662-6279 (Inside CA)

The 2564 is \$8.95 plus \$2.50 shipping. You might want to order two while you're at it since JDR has a \$10 minimum purchase. By the way, I have no idea what the legality of copying Commodore's ROM code into an EPROM is, but I assume it's OK as long as you own the original ROM and do it only for your personal use. Any comments on this would be appreciated.

Playing the "Factory Service Game" (the Old Way)

Years ago, when Commodore actually sold some of its computers through independent dealers, end users were able to get local service from a network of factory authorized service centers. You took your machine to a dealer or service center, and they fixed it with parts from Commodore. By the time the VIC-20 hit the mass market in 1981-1982, Commodore began to let its service support die, along with the rest of its business division. By 1983, it was almost totally defunct except for a hardy group of independent repair centers and dealers that specialized in Commodore repair.

So, for a while, getting your Commodore VIC-20, 64, 1541, or printer services was quite a challenge. By 1984, there was only one "official" factory service center for Commodore products in the U.S. Over two million VICs and 64s were in the field. If you wanted service, you sent your machine to Pennsylvania and played a three to six week waiting game to get your

VIC-20, C-64, or 1541 "serviced." The only consolation was that the cost was relatively cheap...in some ways.

Factory "Service"

For a "flat" service fee that ran from \$55 to \$95, your machine was "serviced" and returned to you. Actually, the "servicing" consisted of exchanging your defective computer, disk drive, or printer for a new one from the factory. Commodore took your old machine and threw it into the "remanufacturing line" at their factory (where they replaced the motherboards and other components). Then they picked out a new box of whatever you sent in and mailed it back to you. So, you ended up getting a "new" machine fairly cheap.

Commodore's service plan wasn't as bad as some of its low-end competitors. Their factory service was usually done on an absurd "parts and labor" basis. It didn't make sense to Commodore to waste an hour of a technician's time (\$50 or so) plus parts, to fix a \$25 computer board.

Continued on page 54

A Trip On The Entrepo "Quick Data Drive"

by Al Koller, Jr.

If you own a Commodore 64 (or VIC 20 with 24K of memory expansion) and want to speed up your data input without buying a disk drive, then Entrepo's "Quick Data Drive" may be the answer for you. This compact, lightweight unit measures only 2"x4"x6" and weighs less than 2 pounds, but it packs quite a wallop in speed and capacity. Using micro-cassettes (which are called "wafers"), the QDD can store up to 170K bytes of information (same as the 1541 drive), operate using its own "Quick Operating System" from tape or ROM, and transfer data at up to 15 times the speed of the Commodore Datasette. As shown in Table 1, it sometimes loads and saves even faster than the 1541 Disk drive, but we'll talk more about that later. First, take a

look at what's available with this low cost (\$84.95 retail) unit.

The Quick Data Drive comes with a cassette version of the Quick Operating System (QOS), an extra blank micro-cassette, and a manual. Once QOS is booted up, it resides in protected memory and acts just like a disk wedge program. The user can also load a File Management Utility (FMU) which provides single keystroke operations for formatting the wafer, saving and deleting files, transferring files from disk to wafer and vice versa as well as from wafer to wafer and from wafer to datasette or reverse, renaming files, scratching files, creating a new QOS wafer backup, cleaning the wafer drive, and listing a wafer directory. Once installed, the QOS remains active, even after a RUN/STOP/RE-STORE or NEW!!! If memory

is overwritten by an applications program, the FMU may have to be re-loaded, but the drive will tell you to do that if necessary.

Aside from the speed and convenience of using this simple device, I was most impressed with the power and simplicity afforded the user. Like the use of the cassette, the wafer drive does not require appending a device number to tell it what to do. You simply hit SHIFT/RUN-STOP and the drive loads the next program in line. Or, simply type LOAD "program name," RETURN, and the drive goes and finds the program and loads it exactly as if it were a disk drive! Getting a directory off of a wafer drive that resembles a cassette tape recorder is really amazing, and this unit is fast, quiet, and reliable. It has only

Continued on page 54

Inside Commodore
Continued from page 53

But few of the returning Commodore machines ever needed even \$50 worth of labor and parts to get them in shape. In fact, many of the components were in almost perfect condition, except for a fifty cent part like a fuse. It appeared to be a "good deal" for the user, but obviously, it was overkill and expensive in the long run. Also, Commodore was filling its warehouses full of perfectly good "remanufactured" computers.

Cheap and Good-Remanufactured Bargains

As a result of the exchange policy (which, by the way, is no longer in effect), Commodore ended up with literally tons of "reconditioned" C-64s, disk drives, and printers. All of them are as good as new. Through liquidation firms, they are now "dumping" all those reconditioned items for ridiculously low prices. You've probably seen the national ads (they've been in the *Computer Shopper*) where they say "we can't tell you the brand, but here it is." The picture shows, obviously, a C-64 or SX-64 and a very low price.

Well, they aren't lying. The machine really is a remanufactured Commodore which probably includes a new printer or modem to "sweeten the deal." On top of that, they are offering a full factory warranty. Now's the time to get your "backup" C-64 or disk drive. These are "last call" prices

Trip on Entrepo
Continued from page 53

one button--PLAY--and a red light which illuminates when the drive is busy searching, saving, loading, etc. The Quick Data Drive can be daisy chained with another QDD or a cassette recorder. Since it uses the cassette port, the serial port is free for connecting disk drives, and the units can all be used together. This makes an excellent second unit for those who want the convenience of two disk drives but can't afford the expense.

If the "Phantom QOS" optional ROM cartridge is installed, the user doesn't even have to load the QOS and FMU. It resides in memory and is available whenever needed. The system provided for review included this ROM, which I found very handy and would recommend for those who will use the drive extensively. Also included for review were three software programs on wafers from this same company. These programs, "Word Manager," "Plan Manager," and

before the C-128 arrives in full force.

There are enough of them out there that I feel they may really eat into the Christmas sales of the C-128, and who knows what else. Commodore may be killing their retail sales by dumping their own remanufactured computers. That's an interesting twist.

The "Factory Service Game" (Newly Revised Version)

Because of the previously mentioned problems of "remanufacturing" computers, and the need to establish a credible base of local service for the new Amiga and C-128, Commodore has been rethinking its service program. They have decided to loosen up with spare parts and service manuals (which were previously hard to obtain) to get some other service centers running. Instead of a single factory-authorized service center, there are now several hundred, and probably one near you. How did Commodore set up a service network so fast? Simple. They cheated.

Actually, back in March, they contracted with RCA to become a service account. So, that means there's a chance the local appliance store who works on RCA TVs and VCRs will now also be able to fix your broken Commodore. Local service may cost more than the old \$50 exchange program, but then again, it may be cheaper. It should certainly be a lot quicker than three to six weeks.

In addition to all this, Commodore has implemented a

"Speed File," were medium quality, limited capacity versions of a word processor (similar to Speedscript), a spreadsheet (similar to Practicalc), and a database program which would not load in the configuration provided. These programs point to one of the shortcomings of the QDD -- the fact that programs already in micro-cassette format will not be plentiful for a while. However, with the utility for saving and transferring data from disk or cassette, this should not be a real drawback.

Also included with this unit were two games which were quite interesting--Epyx's "Mission Impossible" and Cosmi's "Aztec Challenge." This is not a software review article, but these games attest to the storage capacity, speed of loading, and versatility of the wafer drive. All of the software came on quality micro-cassettes with write protection capability (using a sliding plastic cover) and good quality documentation. The games were packaged in

Continued on page 84

new toll-free "800" number to answer any and all questions you might have about service. The really strange thing about this was that the number actually worked. I know. I called it. They actually answered and talked to me. Amazing. Of course, nothing that works that well is bound to last. So, Commodore changed the "800" number to a toll number - (215) 436-4200. If it's as good as the short-lived "800" number, it should be worth the price of a phone call.

Now, if they just support the local service centers. And if the local service centers just do a decent job of service. Commodore may have done the near-impossible: great good service out of none...in almost no time. Sometimes truth is stranger than fiction. Let's hope it works.

Independent Service for Commodore

If you don't live close to a "factory authorized" service center, you might consider one of the good independent service centers for Commodores. They usually are very familiar with Commodores, charge a flat rate (like Commodore used to), and have quick turnaround times. I've listed the names, addresses, and rates of some of these independent repair centers in Table #1. Check recent issues of the *Computer Shopper* for other service centers.

A final alternative for those who are looking for professional service for their machines is to buy a copy of *SAMS Computerfacts* service manual for your model (described in the next section) and take it, with the broken machine, to a good electronic technician. Even if the tech isn't familiar with your system, the SAMS book makes it so simple he should be able to get it working. If the tech is familiar with *SAMS Photofacts* manuals for TV and stereos, the *Computerfacts* manuals are up to SAMS usual high standard of documentation.

Doing It Yourself - Chips and Manuals

When it comes to repairing your own Commodore equipment, there are two essential items you need: service information and spare parts. It's traditionally been hard to get both of these items from Commodore.

Now, things may be a little different. SAMS, a technical publishing company, has produced some excellent service manuals for the Commodore line of computers. And Commodore itself is finally making some of their custom chips available to persons other than dealers.

SAMS Computerfacts Service Manuals

At least half the battle of servicing any kind of technical equipment is having good documentation available. Commodore is notorious for poor service manuals. Even when its old dealer structure was in effect, service techs moaned over the lack of service info. There has never been much released by Commodore on the VIC-20, 64, and 1541. Now, all that is changing.

Howards Sams and Co. (known as "SAMS") needs little introduction to most electronic service techs. They have been producing superior service manuals for TVs and other consumer electronic devices for decades. Most TV service shops rely on SAMS manual for all their service information. Now, SAMS is producing a similar line of service manuals for the most popular micro-computers.

SAMS is no newcomer to the micro world, either. Some of the best microcomputer books in the world have been published by SAMS, including Don Lancaster's *Cookbook* series, *Cheap Video* and *Enhancing Your Apple* volumes. Of course, SAMS' most famous books in the Commodore world have been the *VIC-20* and *C-64 Programmer's Reference Guides*. Oh! Thought the name was familiar, right? In case you're still mixed up as to who SAMS is, look on the back cover of your reference guides. That tells the whole story.

So, SAMS is now producing the "Computerfact" series of manuals for Commodore. You can now get manuals for the C-64, VIC-20, 1540/41, C-16, 1525, 1701, and Plus/4. Other ones are on the way. The list price is \$39.90 per manual, but you can find them discounted. K. Boufal, listed below, sells them for \$26.95 each. The price may seem a little stiff,

but the manuals are excellent and can pay for themselves quickly if you do much servicing for yourself or others. They would be a good investment for a technically-minded user's group. Here's the address:

Howard Sams and Co.
4300 W. 62nd St.
Indianapolis, IN 46268

Chips

Many of the chips used in Commodore computers are common LSTTL devices and are available from hundreds of chip distributors, many dozens of whom advertise in every issue of the *Computer Shopper*.

Most of the LSI chips are of the 6500 series, which was originally developed by the MOS Technology division of Commodore, but have since been "second sourced" by companies like Synertek, Rockwell, GTE, and NCR. There are dozens of sources of the 6502 and 6522 chips.

But, many of the chips used in the C-64 are custom designs that aren't second sourced. These include the 6510, 6567 VIC II, 6581, and 6526. To get them, you still have to go to Commodore or one of the few distributors actually handling MOS Technology products.

The best source of the Commodore/MOS Technology chips, in my opinion, is K. Boufal Consulting Services. K. Boufal is about the only source I know outside of Commodore who carries all the chips like the 6560 VIC-I, 6567 VIC II, 6581 SID, 6526 CIA, 6510, and even the weird 82S100 PLA. Most of the chips are in stock and shipped immediately. He's the only national distributor who has committed himself to providing Commodore parts to non-dealers. If you send \$2.50, you can get the latest catalog full of goodies. For a stamped business-size envelope he will send you his latest flyer of monthly chip

Continued on page 84

Some Independent Commodore Service Centers

Name and Address of Service Center	Service Rates for:			
	64	VIC	1541	801
Blue Chip Computer Repair 1290 Black Horse Pike Tunersville, NJ 08012 (609) 728-9546	\$45	\$35	\$50	N/A
T. C. Service 700 Parkland No. Jasper, AL 35501 (205) 773-1077 (800) 221-7770	\$45	\$35	\$60	\$60
Triad Computers 3068 Trenwest Dr. Winston-Salem, NC 27103 (919) 765-0433	\$59	N/A	\$65	\$59
Proto PC 2439 Franklin Ave. St. Paul, MN 55114 (612) 644-4660	N/A	N/A	\$49	N/A

(Note: "N/A" means the service rate was not advertised. Contact service center to find out their current repair rates not listed.

Table # 1

IBM-MS DOS

It's Easy — When you Have Ability!!!

by Andrew Fried

Author's Note: They say that everything is easy if you have the right tools. ABILITY may well be the long sought universal tool computer users have longed for. Parting from my usual review technique, I invited an associate of mine to provide his insight into this package—a kind of “man-on-the-street” opinion of this significant product.

Because I was particularly interested in his opinion regarding the word processing and database facilities, I have left his comments intact. I think you'll find ABILITY interesting!

A View From A Different Perspective

XANARO may very well have come closer to offering the “new wave” executive a total disk package than any of the bigger names with longer track records. But no software system is perfect so ABILITY has to take a few rocks along with the roses.

What ABILITY does, it does well, but it stops a bit short. What ABILITY does well, it does easily (for the most part) and for most desk jockeys on their way up, this is important.

Most of the “big name” competitive systems have increased the complexity of the programs in use and manipulation. This makes the apparent assumption that as terminal-users develop facility with one program, their next move is to buy something more complex. This may well be the archtypical example of the “hacker mentality” but it doesn't fit the guy or gal who learns a new program with productivity as the motivation.

Now along comes ABILITY with a single small book that tells you how to get draft copy and finished documents out of your mind, your desk in quick-time and with the least aggravation.

Hardware

To begin with, ABILITY will run without a hard disk. Since the total file-size of all of the modules exceeds 600K, it is impossible to run on a single floppy-disk based system. A minimum configuration would, therefore, require at least two double-sided disk

drives. I would certainly recommend, however, that those interested in ABILITY also give serious consideration to a hard disk.

While the program runs on an IBM PC machine, with 256K of RAM additional memory in the 512K range would be most advantageous. The more memory your system has, the larger the file ABILITY can work with and the greater the number of files ABILITY can hold.

ABILITY can run on a monochrome system. Unfortunately, when operating without graphics you lose some of ABILITY's best features—the graphics display and Presentation (discussed a little later on). If you like drawing pie charts, bar charts, stacked charts and line charts, you'll definitely want graphics capability. Color, on the other hand, is unimportant since the screen graphics are in monochrome. The only way to obtain color graphics is through the use of a color plotter, several of which are supported by ABILITY.

To Begin

Once the program is in residence on your machine and in the currently used directory, type an “A” and you have ABILITY! After a couple of introductory graphics, you are presented with a menu offering DATABASE, SPREADSHEET, GRAPH, WRITE, COMMUNICATE, OTHER PROGRAMS, and OTHER FILES.

Beneath these horizontally displayed offerings are lists of your titled creations in the appropriate columns. The top of the list is always “<<New>>”. Move the cursor with the usual keys to highlight a file name, hit return and you are ready to type new material or edit the old.

It's tempting to begin at the upper left, with DATABASE, but that just is not very likely the way the executive interest will run. First use will most often be for a quick note, an “AVO” or a draft memo for the secretary.

From the block menus on the second startup screen, “WRITE” will highlight

“<<New>>” under the “WRITE” column when the return key is stroked. Hit <return> again and you have a working screen with neat side-bars, a status line with page number, line and column numbers, and percent of allotted space available.

Beneath this are two lines of function key assignments to move you around, in, or out of this part of the program. It takes up only 4 lines and it works very well. So far so good. It is all quick and simple and I like it.

Write

I liked ABILITY even more once I started to write my part of this article.

Once again, it's easy. Just start typing. It does wordwrap of course, and all the usual bread-and-butter things with no apparent complexities. Tabs are set at 8 spaces, (that's strange) but you can change it. “End” and “Home” work with and without the “CTRL” key, just as you would expect. “PgUp” and its opposite member function normally as do “Del” and “Ins.”

As a matter of fact, the entire word processing part of ABILITY reminds me more of the Philips MICOM 3000 series program than any other I've tried. (My secretary forced me to learn that one so I could do screen edits and save her printer time!)

By using the prompts at the bottom of the screen, some of the fancier moves are just as easy as you could want. My favorite was the text mover. Shade it (F7), then pick it up (F5), then put it down (F6). It's all right there waiting for you, and in a nice assortment of colors if that's your thing.

Flipping between two documents is just super simple, and in so doing, you can move text within; or between the documents and work on both at the same time. Search and replace operations are just about as easy and certainly easier than on other WP programs I've tried. But this sort of thing is outside the rough and ready applications I use most.

As with most of “ExDesk” programs, you can pull from

Continued on page 56

AT/PC Compatibility Problems And Some Tricks

by Hal Nieburg

Owners of new IBM-ATs are discovering some compatibility problems with their old PC software and data disks. Unfortunately, IBM has not been overly helpful in clarifying the situation in advance, and users are finding out the hard way, after spending \$4,000 or so...

IBM guarantees “upward” compatibility; that is, that the AT will read old disks without difficulty, and allow software and data to be moved to high density floppies (known as HD format, 80 tracks of 15 sectors each, for a total of 1.2MB) or to hard disks (for software that is not copy protected). However, IBM “does not recommend” (a curious choice of words) that the user attempt, on a HD drive, to write to disks formatted for the PC or XT (40 tracks of 9 sectors each for a total of 362KB); and, in fact, the AT will not format such disks at all!

If you attempt to format an ordinary double-sided, double-density diskette, the process will fail. The AT ROM has a verify routine that checks the disk density and, finding an inferior disk in the slot, stops formatting and declares, “Invalid media or Track 0 bad - disk unusable, Format failure.”

In addition, a great many programs written for the 8088 chip will fail to run properly on the 80286. Screen addresses and interrupts are enough different to cause some software to hang up or crash. Publishers are rushing AT upgrade versions to the market; but buyers should beware. Much of the PC software already in use will not run and many vendors are still selling the old versions. Better to avoid the extra trips, the frustration, and the heartache!

Beyond The 640K Barrier?

Users should be forewarned of another misunderstanding about the AT. It is NOT, as

some have claimed, “lightyears ahead of the PC and XT!” It is certainly faster and more capable. But it is only about twice as fast, and its ability to address fantastic amounts of dynamic RAM has been exaggerated and misrepresented by the enthusiasm, to put in charitably, that greeted its introduction last year.

Many have been awaiting with great anticipation the breaking of the PC/MS-DOS 640K memory limit. Especially converts to integrated software packages like Lotus Symphony and Ashton-Tate's Framework, which are enormously RAM-greedy. With 640K installed, both programs begin to creak when working files and buffers get much beyond 100K. And ramdisks are not possible. The programs load directly into RAM below the 640K limit, leaving a woefully inadequate margin for practical use. Spreadsheet size is so restricted that many users have abandoned integra-

tion in favor of old stand-alone favorites, like Lotus 1-2-3.

The early hype about the AT oversold the memory expansion capabilities, celebrating the ability of the new chip to address up to 8M of memory. I know many people who rushed out to buy ATs in order to expand the size of working files. They were to be sadly disappointed. The fact is the AT is limited by the same system architecture as the PC/XT. All of the expanded memory boards so far available permit ramdisk expansion, but little else.

Using IBM's VDISK utility in DOS 2.1 and above, one can create “virtual disks” above the 1M mark. This is not very useful because none of the current software is designed to load above the normal 640K working memory. And, in any case, the 360K remaining below 1M is entirely wasted! Perhaps there is a marginal value in loading UNIX to high

Continued on page 88

It's Easy

Continued from page 55

the graphics package to add a virtually wordless punch to your quickee memos and presentation drafts. Now, I like to let a Pro do a Pro's job. So when I want graphics, I give the numbers to the Illustration Department. But ABILITY's "GRAPH" package is clean, quick, versatile and SIMPLE. It is really tempting.

You can also extract sections from the SPREADSHEET and the DATABASE packages if you want to jazz up your letter to the boss. Once again, it's a snap. Just locate the cursor, select Commands (F2), then SPREADSHEET, then the name of the one you want, then pick it up and put it down.

Format commands let you justify right and left, place headers and footers, dates and page numbers in all the usual locations. Type size runs 10 cpi in default, with 12 and 15 cpi selectable. Yep, just about everything a good WP program ought to do.

The Problems I Found

As unbelievable as it seems, neither Andy Fried nor I could figure out a way to get the thing to double space. No way at all friends! Sorry. A minor problem also arose when we found that we could create narrow margins but couldn't get the program to double or triple column the whole article. (Sorry Stan.) For the Ex-Desk this should be NO PROBLEM. However, let's keep it in mind, folks, that for a program like this you cannot target the whole world. I still like it and I'm gonna use it! So?...

Data Base

ABILITY provides a database package that may be just the thing for the manager's

desk system. It is not complex to set up or to access. At the same time we have to keep in mind that it is not as comprehensively capable as dBASE or RBASE. It reminds me of FRIDAY (Ashton Tate) with a limited format and quicker access.

If you want to create a name and address file, a parts inventory, a tickler file for the secretaries' birthdays, this is just the thing. If you want to create a relational file of your video tapes with producers names, directors, actors, plot lines, locales and dates, then this just won't be enough.

It was a snap to take a name, address and vital statistics file out of SIDEKICK (Borland) and enter it on a "FORM" I created in a few minutes with ABILITY's straightforward *How To* book balanced on the keyboard. It leads you by the hand if you follow it line by simple line, or you can look for the section headings and jump around for direct answers to direct questions. I like that.

In spite of all the good things I can say about the documentation, I finally had to do a trial and failure test to learn how much room we are allowed in each field. (2 x 65 characters minus the field title.) I still don't know the maximum permissible size of a file or the total capacity of a form (record). These are the sorts of numbers that database addicts are fascinated with. Sorry, people. Whatever it is, it seems to be enough for the targeted application.

The "Sort-of Important People, File" I transferred to ABILITY can be brought to the screen with a quick cursor move and one keystroke from the library menu. Since my library menu will probably be up anytime the terminal is at

idle, this represents no real overhead.

If you enter data on your forms in a random sequence, they will appear in the same order in which they were created until you use the SORT command to put them in alphabetical or numerical order. As you might expect, this creates a new database and you must give it a new name. So far not very exciting. I guess you have to have rejected the tedium involved in learning to juggle larger database creations to appreciate the ease with which all this happened, and dear readers, it happened right for the first time.

You can do the usual things executives, managers, salespersons, and secretaries do with the lists. Mail-merge is always an important office use, and as expected, you can combine your name and address file with letters created in WRITE for personalized mailings.

Browsing, joining two databases, using fields from the SPREADSHEET part of the program are all supported and require a minimum of brow-knitting concentration. What perhaps impressed me the most, after my earlier large-database baptismal trauma was the ease with which one can modify a form, or record, and the understanding manner in which the program handles this rather complex bit of data manipulation.

It does warn you not to try to rename an existing field on pain of losing data—but only if you shut down for the night and forget what you did before performing a few simple steps to recover.

Wild card and Boolean searches and a few other things I will probably poke into some dark foggy night, are also available and seem to be understandable. So why am I not 100% thrilled?

I want a calendar, a calculator would be nice, but I really want a calendar! This thing is so close to being ideal for my own office setting that I could get rid of SIDEKICK and three other programs if this thing only had a calendar. Why, Mr. Hrynack? Why did you get this close and then quit? Aw heck! Take it, Andy.

Telecommunications

That's my friend's thoughts on ABILITY, now for a few of my own. Let me begin with the telecommunications feature. ABILITY sports a simple yet highly functional telecommunications facility. When used with a Hayes modem, the program offers autodialing, auto logon, file transfer, data capture and data transmission.

While ABILITY's modem program does support a proprietary error-free protocol,

Xanaro made the same mistake Hayes made in their original release of Smartcom—it doesn't support Ward Christensen's XMODEM protocol. Although others have surfaced, XMODEM is the undisputed standard protocol for microcomputer file transfer.

Without XMODEM, users of ABILITY are unable to download or upload non-ASCII files from any source other than fellow ABILITY users. ASCII files, however, can be transmitted using the Xon-Xoff protocol.

The telecommunications program supports several terminal emulation modes—the VT52, VT100 and standard dumb terminal. This allows ABILITY to connect to mainframes supporting any one of the three protocols.

As is the case with the other sections, there are no hidden commands to memorize or look up. All of the commands appear on menus and are easily accessed in the same manner as Lotus—you move a highlight bar to the command you want and press return. Instead of moving the cursor, you may also enter the first character of the command (also identical to Lotus).

There are only two sections requiring installation; one section covers the modem and communications parameters while the other covers the terminal information. Even the novice should experience absolutely no difficulty in using the modem.

Presentation!

You have to see this section in order to fully appreciate it. Presentation! (the actual name of this section) enables you to take numerous screens of information (saved as a "snapshot") and cause them to be automatically displayed in a given order.

In addition to displaying the screens, you have additional parameters which allow you to determine how long the "snapshot" appears on the screen, and which tune you want played when the picture appears (yes, it even puts the pictures up with music!).

In order to enhance the screens, there are several icons available to spruce up the screen or you can simply add text to it in order to clarify a point.

Presentation! is ideally suited for executives or marketing subtypes desiring a vibrant and unique approach to information dissemination. Even a Macintosh aficionado would react with enthusiasm if exposed to a presentation made by Presentation!

Graphics

A statistician I work with often remarks that nothing

demonstrates mathematical relationships better than graphics. Whether you are depicting sales trends, displaying the breakout of your future budget or just plain plotting trends, nothing says it quite like charts and graphs. ABILITY contains a section devoted entirely to just that.

The graphics section permits you to create a variety of charts using one or more methods to depict the numbers. The most commonly seen is the bar chart.

If a picture is worth a thousand words, let's try shortening this review with an actual sample of a simple chart. In order to draw the chart, only four numbers will be entered—10, 37, 21, 32. As you can see, ABILITY will automatically proportion the different axis of the chart and create a representation automatically.

The charts in Figures 1, 2, and 3 were created under ABILITY may then be included within the actual textual material created under the word processing facility or with Presentation! Also, numbers derived from existing spreadsheets can be automatically fed into the graphing program and drawn automatically.

Spreadsheet

No integrated package would be complete without the spreadsheet and ABILITY is no exception. Looking and acting much like Lotus, the spreadsheet facility seems adequate for most users' needs.

The spreadsheet features all of the capabilities found in most stand alone programs with the exception of the macros. If your spreadsheet uses formulas, require sorting, etc., you'll find little you can't do in the spreadsheet.

ABILITY does allow information to be exchanged between the spreadsheet and the other applications without the bother or fuss of translating the data.

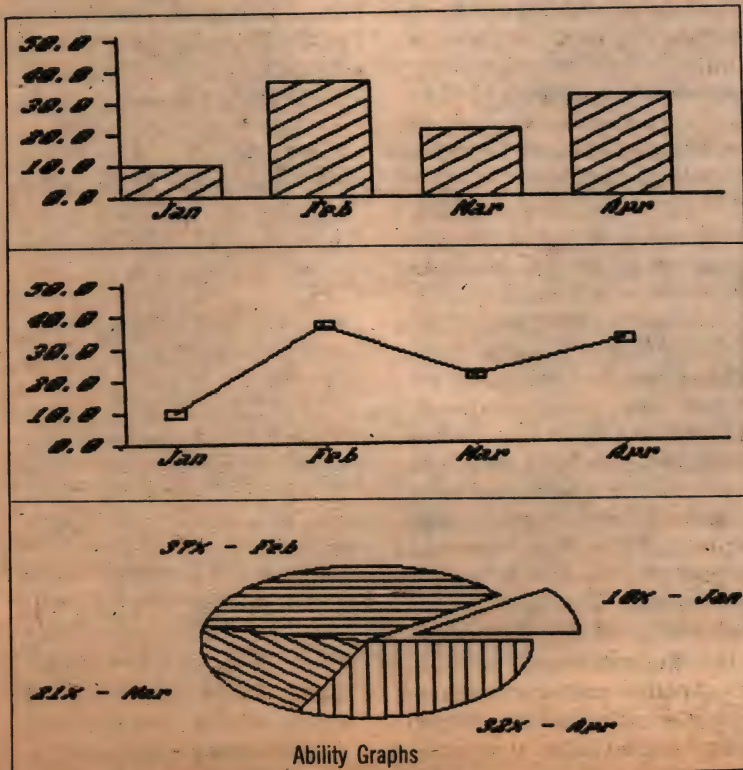
Most will find the spreadsheet more than adequate. Like the other applications, it is very easy to use and completely menu driven (no hidden commands to memorize).

Conclusion

My reason for inviting an outside evaluation of ABILITY was that as a "hacker," I sometimes find it difficult relating to the non-technical computer person at whom ABILITY is directed. I thought the "man-on-the-street" opinion would be very appropriate given the intended market for ABILITY.

After reviewing the product myself, I placed it in front of two associates—one that never

Continued on page 88



TANDY COMPUTERS

Tandy's New High Speed DMP 2200 Dot Matrix Printer -- Handles All Business Needs

The new Tandy DMP 2200 printer is a fast, high density triple mode dot matrix printer for business use. Printing at up to 380 characters per second, this efficient printer features Tandy and IBM-compatible modes of operation.

The DMP 2200 printer's capabilities include data processing for the fastest output of program listings, word processing mode for letter writing or creating text documents, and graphics mode for drawing pictures, figures or graphs.

Fastest results are available in data processing mode with 9 x 9 monospaced characters. Near letter quality results are created on a variable 17 x 18 dot matrix for fixed or proportionally spaced fonts.

The printer provides a variety of fonts: standard, near-letter-quality, italic and microfont. Font attributes available include condensed, elongated, bold, doublestrike, underline, double-high, super and subscripts. The printer supports 6

and 12 lines per inch in forward and reverse, as well as 8, 48, 72, and 144 lines per inch feed increments.

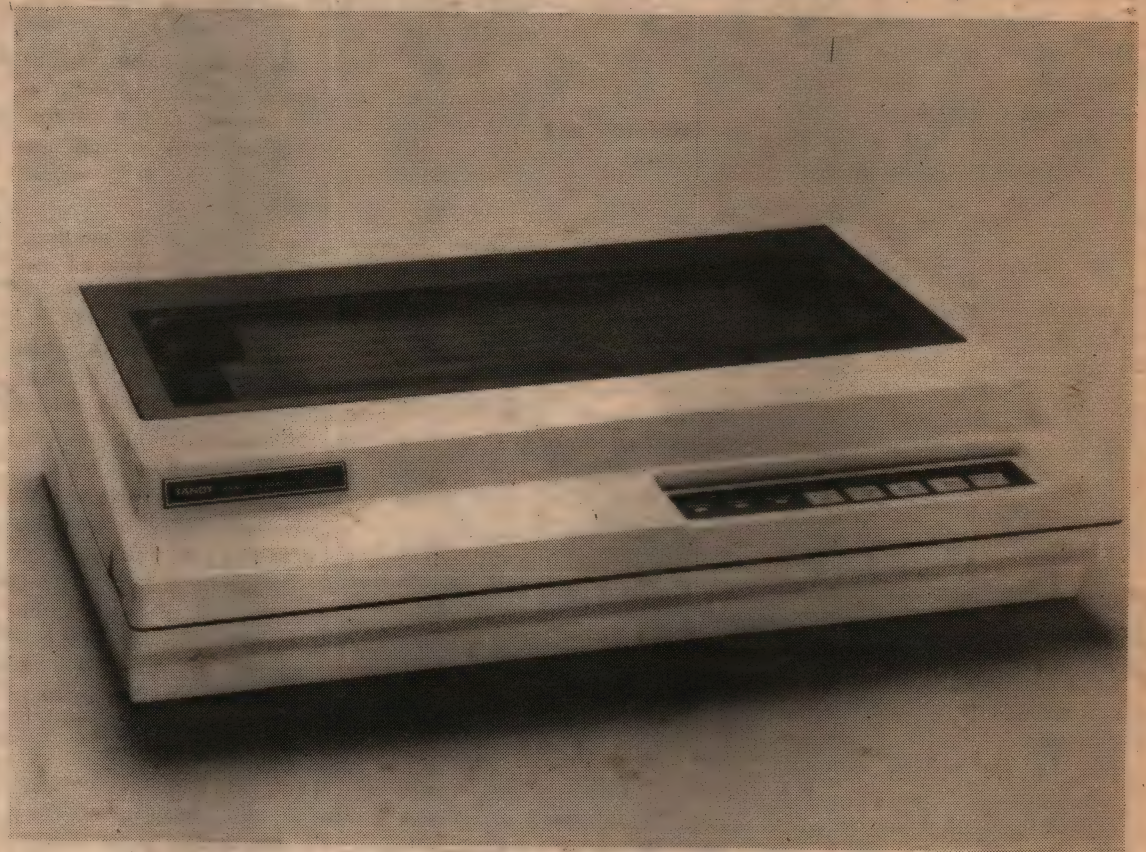
Other software-controlled features include bidirectional, logic-seeking carriage motion; support of Tandy or IBM character sets; Tandy or IBM bit image graphics up to 240 dots per inch resolution.

The printer uses computer fanfold forms from three inches to sixteen inches wide. It prints one original, plus up to six copies. Fast, accurate paper handling is managed using the built-in four pin adjustable tractor.

The Tandy DMP 2200 printer (26-1279) is available for \$1,695 at Radio Shack computer Centers and participating Radio Shack dealers nationwide.

For more information contact Tandy Corporation, 1800 One Tandy Center, Ft. Worth, TX 76102, (817) 390-2129.

Mention that you read about it in the *Computer Shopper*. •



Tandy's New High Speed Printer

Corresponding With CoCo

by Fred Freel

Corresponding With Basic09

If you enjoy computing with the Radio Shack Color Computer, but haven't as yet taken that step towards implementing the OS-9 operating system, now is the time. The advantages of Basic09, with its Pascal-like structure, will give you a whole new outlook on programming.

When you took your first look at Microsoft BASIC programming code, you undoubtedly scratched your head (as we all did). Supposedly, if you're not familiar with Basic09, its code will look just as strange, even if you don't know the most rudimentary BASIC functions. Basic09 will prove to be easier!

In fact, if you don't know BASIC, but are planning to buy a "CoCo," make sure you get the OS-9 operating system, and the Basic09 programming module. Then, forget learning Microsoft BASIC at all, because you won't need it once you understand the more powerful Microware version.

True, their package price of \$60 for the operating system, and \$100 for the Basic09 module are a bit on the steep side, as "home" computer software goes, but this is powerful stuff, and shouldn't be confused with some of the more simple DOSs available for the competition.

OS-9 puts you in a mini-Unix programming environment that's truly "programmer oriented." Since it is a disk intensive system, OS-9 allows manipulation of files that you wouldn't believe possible in a regular DOS.

The accompanying programs will, in essence, provide you with a mini-text processor. And with minor modifications or additions, could be used for a number of different text processing chores.

Our primary objective here was to provide printer format utilities for the Gemini 10 dot matrix, its 10X/SG-10 descendants, and Star Power-Type daisywheel printers. Table 1 will give you an overview of the commands that are possible, and the Basic09 programs we are presenting here will give you some options, as

to how you can implement them. All of the commands are also applicable to the Gemini 10X, save the proportional spacing, as it doesn't incorporate optional ROMs, and to the SG-10, which incorporates modes we haven't listed as well. We've implemented both serial and parallel output too.

Before we get to the software, however, let's take a look at how these printers should be interfaced to the CoCo. Typically, if you ask your dealer how to make this connection, they respond with a "huh?" They are probably not familiar with the CoCo's serial port. Likewise, if you ask a Tandy sales rep or "Tech" the same question, they'll go the same route because they are unfamiliar with Star's printers. Fear not, it's not that difficult!

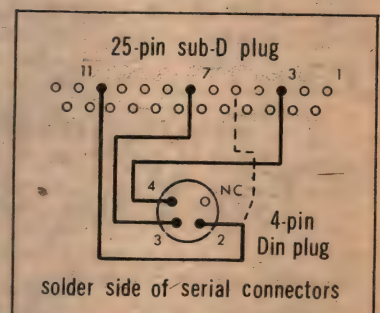
The first thing you'll need is a cable, and for the Gemini, if it's not equipped for serial input, an interface. If you purchase your Gemini with an accessory type interface be certain that the seller can provide a cable, or at least a connecting diagram. What we'll outline here are Star products, but

there are many third-party units available.

The easiest connection will be between CoCo and the daisywheel, since the Power-Type is equipped with both parallel and serial inputs. All you'll need for a serial interface is a length of three-stranded cable, preferably shielded (not more than 10 feet long), a 4-pin Din plug (RS# 274-007), and a 25-pin subminiature-D plug (RS# 276-1547) equipped with a hood (RS# 276-1549). The accompanying drawing illustrates which wire should be wired to what pin in the connectors. Also, note that the drawing shows the connectors from their solder side, in case they aren't numbered.

If you are using the Star STX-80 serial to parallel conversion interface for your Gemini, the connection will be slightly different, as they use pin-5 of the 25-pin connector (busy) for handshake with the computer. This connection is shown with a broken line in the illustration.

Another matter is dip-switch configuration for the Power-Type. If you're not up on



RS-232 protocols, this can be a job in itself. But... We've figured it out for you, so don't fret. The accompanying chart outlines the possibilities for dip-switch number two. Dip-switch number one is used to toggle from parallel to serial input, and selecting printer modes. For use with those settings illustrated for dip-switch two, See page 100.

The dip-switches for the Gemini/STX-80 interface are a bit less complicated. Dip-switch one selects baud rate, while switch two selects handshake. We've found that, when using the CoCo "bit banger" serial port to send data to either a Gemini, or Gemini

Continued on page 100

The Correspondent For The Model 4

by Richard Burckhardt

The Correspondent for the Model III (July and August 1985 issues of *Computer Shopper*) was a bigger success than I ever dreamed it would be. For those of you reluctantly using the system on your Model 4 in the Model III mode, relief is here! The Model 4 version is not only bigger and better, but it consolidates the five programs in the Model III version into two.

For the most part, the operation is identical to that of the Model III version. The primary differences are in the way this version utilizes the larger 80 x 24 screen and the use of an input subroutine and an error handling routine to help prevent errors and crashes. The Model 4 version also uses a BASIC quicksort since TRSDOS 6 lacks a built-in sort like TRSDOS 1.3's CMD"O." If you want to add more speed to the sorting, you can install one of the commercial sorts available. I tried a couple of public domain machine language sorts, but couldn't get either to work properly and there was no documentation available to help me stumble through.

This version also differs in that the length of text entered is set and can only be changed by going into the program and changing the LM variable. For instance, if LM = 40, then the length of the string can be up to 40 characters.

The Model 4 version makes use of the <CONTROL> key for viewing the records in the ADDRESS/DAT file (Option 3 on the Address Book menu). <CONTROL>-F moves forward through the file, <CONTROL>-B backwards and <CONTROL>-E exits the view mode. Records are displayed two at a time on the screen and you are given the option of making a printout of the records you are viewing.

Another new feature is the check duplicates function (Option 9 on the Address Book menu). When you select this option, the names in the ADDRESS/DAT file are sorted and compared to the names adjacent to them. If there is a match, both records are displayed so that you can make a note of them for editing or deleting later. Only the names are checked, however. You'll have to eyeball the other information.

While I'm on the subject, Cardwriter sorts by zip code, while Address Book sorts by last name. Names should be entered LAST, FIRST - the comma and space are important! If you leave them out, you'll have problems when you sort and print. For instance, if you leave the space out of an entry, such as 'Burckhardt, Richard,' the printout will say 'ichard Burckhardt,' dropping the 'R' off of Richard. If you leave the comma out, the sort routine will give you an illegal function call

(See error codes below). Be sure to always include the space and the comma. If you are entering a single name, such as that of a business, stick a comma at the end of it (example - 'ACME Widgets,'). It might look a little strange, but it will save you some headaches. This applies to BOTH versions of the system.

For details on how to change the sort key, see the Model III article.

Like the Model III version, these programs are set up specifically for the Epson MX-80. For other printers, you'll have to change the control codes (CHR\$) in the programs. I don't really know a great deal about other printers, so you are on your own here.

To get the Model 4 programs up and running, put the files CARDWRIT and ADDRESS on the system disk in drive 0 and load Basic using the command BASIC (F = 2). This sets the number of files to two (required in the delete routine). Type RUN"CARDWRIT" and you'll be on your way.

You also need to remember that if you plan on leaving a field blank for some reason when you are entering names and addresses, you must hit the <SPACEBAR> at least once. Otherwise, the information in that field will reflect what was entered into the previous record, assuming you have entered other records in the current session. This is really useful if you have several en-

tries with identical information in one or more fields. Just type the data into the first record, and <ENTER> for the corresponding fields in the following records and the information will be duplicated. This only applies to the Model 4 version.

A hint about using Formletter: if you are through entering your letter and are ready to sort and print, exit the letter entry mode using '/EX' instead of using the 'AT' key. The reason is that '/EX' will retain your letter while 'AT' aborts to the menu without saving your text.

If you ordered the Model III version from me and would like the Model 4 version, send me the original disk and \$5 and I will format it and place the Model 4 Correspondent on it and return it to you. If this is your first time to order the program, it'll cost you \$15 plus \$1 for postage and handling. If there is enough interest, I'll do an MS-DOS and a CP/M version. Drop me a note at 744 Dorchester, Houston, TX 77022, or on CompuServe #71525,1133. This isn't a promise that I will do a version for

putted a name in the ADDRESS/DAT file without a comma, causing the routine which rearranges the first and last name for output to choke. ALWAYS include a comma in the name field, even if it is the only item in the field.

Address Book

Error 5 in line 16090 - You tried to sort by a criteria that doesn't exist, usually in the area code search. For instance, you want to search for all entries with the area code 713 and there are no entries with that area code. If you try, you'll get this error.

Error 9 in line 16120 - caused by the same as the above error.

The same errors, but with different line numbers, will occur for the same reasons in the Model III version.

While making the conversion, I also discovered a problem in the linefeed in the Formletter program. The CHR\$ (12) used by the Epson MX-80 lost lines, eventually causing real problems when you printed form letters. The following changes should do the trick:

```
10298 LPRINT CHR$(27)"G":LPRINT CHR$(27)"E"
10390 LPRINT:LPRINT:LPRINT:LPRINT TAB(50)LH$
10400 PL=39-Z:FOR II=1 TO PL:LPRINT:NEXT II
```

your particular machine, just a poll to see what kind of interest there is.

The error routine in the Model 4 programs is a generic one. It will simply tell you what the error number is and what line it is in. The following are probably the most common:

Cardwriter

Error 5 in line 2870 - You in-

NOTICE:

Due to the size of the program listings mentioned in this article, we cannot print them in this issue because of limited space.

Anyone wanting the listings (15 pages) please send a self-addressed envelope to Computer Shopper, c/o Annda Lahee, P.O. Box F, Titusville, FL 32781. •

Finding Public Domain Software For Your 80 — Mission Impossible?

by Richard Burckhardt

Everywhere you look these days, you are bombarded with articles about and ads for free or public domain software. Until recently, however, the problem has been that, unless you were the owner of a CP/M or MSDOS machine, or you sprung for a CP/M upgrade for your TRS-80, you were out of luck. Despite the longevity of the TRS-80 line, finding reliable sources of public domain software for the Model I, III and 4 was akin to the tape recorder self-destructing on "Mission Impossible" before giving Mr. Phelps his assignment.

Things are finally beginning to change as a few hardy souls have recognized the need for a depository of TRS-80 public domain software. You no long-

er have to burn up the long distance lines in search of bulletin board systems with fresh selections of freebie programs (I don't know about you, but all of the BBSs in my area seem to have the same programs in their download sections).

We'll take a look at some of the public domain software libraries available and how you can get in on some of them.

By far the largest collection I have found is distributed by Fax Plus Computing (373 Wilson Street, Derry, PA 15627). As of this writing, the library consisted of 75 volumes (around 1,300 files). The volumes are arranged by category with 35 game volumes, 16 utilities, 13 business/home volumes, nine educational volumes and two communications volumes. Each volume

consists of a filled single-sided, single density disk.

I have personally ordered several of their disks and can tell you that, for the most part, the programs are good. Granted, you will probably get a diskette with 10 or 12 programs, only one or two of which you will find useful. At \$6 per disk, though, you haven't got much to lose.

For instance, I ordered one of their two communications volumes containing 14 files, including documentation files. The single program on the disk that I use, LYNXTERM, a version of STERM, another freebie, turned out to be one of the best terminal programs I have found. I use it almost exclusively. The remaining programs on the disk included LTERM

Continued on page 103

Double Duty

by Lon Andrews

Radio Shack's Double Duty for the Model 4 requires 128K of memory and at least one disk drive. The program divides the 128K into three partitions. Two of these partitions operate as independent 64K Model 4 computers and the third can be used for execution of various library commands. You may load two different programs into the computer at the same time and switch back and forth between them as they are running. This is supposed to give you the benefits of two computers without paying double.

Getting started with Double Duty is easy. Boot the program disk and enter "DUTY." The rest is done for you and soon TRSDOS ready comes up. Loading the first program is done for you and soon TRSDOS ready comes up. Loading the first program is done just the same as always. Do not RESET to auto load a program as that will clear out Double Duty. To load the second program use {CAPS} {F2} to change to partition two and then load the program as normal.

Continued on page 104

APPLE

Ask The Guru

by Don Lancaster

Several readers have asked for reprints of back issues of these columns, so tell you what we're gonna do. How about a book of all the "Ask The Guru" columns collected together, with everything updated, made more continuous, more legible, and de-typoed?

If you are interested in this sort of thing, drop me a written note so I can build a fire under a certain editor at a certain publisher.

And, for those of you that can't survive on a single fix of my goodies per month, please note that I have a Hardware Hacker sister column that appears in *Modern Electronics* magazine. While there is some overlap between the two columns, this *Computer Shopper* column leans more towards software and Apples, while the *Modern Electronics* one has much more hardware stuff, involving both computer and traditional "stand-alone" electronics.

We have all of the usual freebies still available if you call or ask. First, a "no-charge" Synergetics technical helpline. The answers are free, but the call is your dime or whatever. Secondly, a free book and product list. Thirdly, bunches of

free patches for Applewriter. Fourthly, there's a free Applewriter/Laserwriter demo pack that makes you typical Macintosh graphics look like a dull crayon on used notebook paper.

And fifthly, to a very select few *Computer Shopper* readers, there exists the possibility of the Gila Valley Apple Growers Association inviting you on a genuine and 100% authentic tinaja quest. You are invited to stop in on their meetings Thursday nights 6-10 in Eastern Arizona College room T8 or T9 right here in beautiful downtown Thatcher.

Oh yes, twist our arm, and we might sell you some stuff too. Including autographed copies of most of my books. All of the harder to get ones are routinely in stock.

On to whatever it is that we are supposed to be doing here. If you ever figure it out, please be sure to let me know...

What Is The Real Scoop On The Great Toner Cartridge Ripoff?

I just had a top secret conversation with a "usually reliable" source. To protect this source, we will call him "Deep Toner." We met in an underground parking garage that is

so secret it does not even exist.

As you know, you can pick up a Canon toner cartridge for \$50 at your local Price Club or discount office supply. A toner cartridge that appears identical at first glance for the Laserwriter or the (urp) Laserjet goes for double that, when and if you can get delivery, and then only in one color instead of four.

What is really going on here?

It turns out there are solid technical reasons why the two cartridges are different. The price difference has much more to do with supply and demand and economies of scale than it does with any "private label" price gouging scams.

The key difference is that a copier uses a negative imaging system, while the laser printer uses the exact opposite positive imaging toner system. On a copier, places where light hits gets discharged and turns out white on the paper. On a laser printer, what light hits gets discharged and turns out black on the paper.

Different toner compositions are needed for the positive or negative imaging. Unless you want to use white toner on black paper.

The main reason for laser printers being negative imag-

ing is that the laser diode will last much longer, since most documents don't have more than 5% of the pixels black. This translates to at least a 20:1 life advantage for the laser.

Two additional differences between the two cartridges types are that more mechanical support is needed for the laser printers, and variations in the drum sensitivity. The laser needs a drum that is sensitive to a narrow infrared spectrum, while the copier needs a broad-spectrum visible drum.

If you want to take the cartridges apart or play with them, the magic tamperproof Torx screws are removable with a special screwdriver bit available as EVCO part #945B700 and available from Jensen Tools. The toner tank is accessed by removing the long cardboard strip label, lifted from the sides and not the ends. You can then cut a hole in the toner tank with an X-acto knife, and later reseal the hole with strapping tape.

Bulk toner costs pennies rather than dollars, and chances are that the rest of the cartridge is good for at least two or three reloadings. The timer wheels are reset by pulling them out slightly, twisting them past the stop, and snapping them back together again.

But note that you can easily get into low print quality and a real mess if you try any of this.

I have found that the Laserwriter and the Laserjet toner cartridges are in fact interchangeable and appear identical. Right now, it seems better to buy cartridges from HP since they have immediate and courteous drop-shipping from a central location, rather than having to back order things thru an Apple dealer.

Deep Toner and I make the following predictions:

#1. It is all over but the shouting.

Laser printers (and "laser-like" variations) represent a triple quantum leap over older printer designs in speed, quality, convenience, and noise. As such, they will shortly run away with all the marbles. Price is just a matter of time. Even a \$200 laser-like printer is rumored.

#2. Expect a cheap Laserwriter II soon.

Driven by a totally absurd drop in the pricing of 256K dynamic RAMs (they are now essentially free), and a high volume, automated rework of the original klutzy and poorly done computer and driver elec-

Continued on page 60

New Apple II Copy Program Does Away With User-Supplied Parameters

A new copy program which requires no user-supplied parameters has been introduced by Agranat Systems of Weston, Massachusetts.

Called Echo Plus™, the new program allows Apple II users to back up their software without looking up and/or changing as many as 500 parameters.

According to the publisher, Echo Plus will copy almost all, even the best protected disks. The program boots up in 3.7 seconds and copies most disks in under 2 minutes.

An exclusive Automatic Disk Copier feature provides automatic copying for more difficult disks when the user has no information about how the disk is protected. When the user switches to the automatic mode, Echo Plus analyzes the disk and selects which tracks to

copy. It then reads in and analyzes each selected track, adjusts all parameters as necessary and copies the track. It continues automatically until the entire disk is copied. Although the process may take about 20 minutes, it allows the user to copy disks which otherwise would be too difficult.

In designing Echo Plus, the author gave the human interface aspect as high a priority as the excellence of the program itself. For example, the screen format is organized into three windows to give the user more information at once. A Global Parameter Window displays the values of the eight parameters used throughout the program. The Function Window displays menus and function parameters for various Echo Plus modes. The Status Display Window shows

information about each track of a disk. Two global keyboard controls are used throughout. CTRL-RESET can be used anytime to return to the main menu, clear the status display, and reset all parameters to their original default values. The Escape key can be used anytime to return to the main menu, with the status display and parameters unchanged. Echo Plus also features cursor-controlled menus and command flexibility.

The 42 page manual is comprehensive - and comprehensible, with easy-to-follow instructions and 13 pages of technical information for the advanced user. The manual describes in detail how disk drives work, how disks are formatted, and even explains how several copy-protection schemes work.

Echo Plus features a sophisticated track editor which allows the experienced user to read in and examine raw data on a track, analyze the track "by hand" and copy

the track under his/her direct control. The editor writes up to 64 separate arcs of data per track to disk and highlights

Continued on page 110

Echo Plus Comparison Chart

	Echo Plus	EDD III	Locksmith 5.0
Parameters	Automatic	User-supplied	User-programmed
Boot-up time	3.7 seconds	8.4 seconds	16.3 seconds
	(single load)	(single load)	(single load)
Copy Time (typical)	2 min	2 min	5 min
Manual	42 pages	47 pages	140 pages
Technical information for advanced			
Users	13 pages	4 pages	7 pages
Drive Speed	RPMs	Graph	Graph
Disk Certify	Yes	No	Yes
Disk Erase	Yes	No	Yes
Track Editor	Yes	No	Yes
Arcs per track	64	N/A	1
Retail price	\$59.95	\$79.95	\$99.95

Ask The Guru Continued from page 59

tronics, you should see at the very least, price parity with the better grade daisywheels.

#3. Winning laser printers MUST speak Postscript.

Postscript by Adobe Systems is fast becoming the standard language for both typesetting and electronic imaging. Besides its tremendous momentum, the key advantage of Postscript is that it also runs on most newer typesetting machines.

This means that you can instantly upgrade your final copy quality from 300 dots per inch to 2560 dots per inch with nothing but a phone call. Using, of course, the same software on the same machine. Present rates for typesetting with full integrated graphics and images now go for a buck a page, with free corrections.

#4. Winning laser printers MUST be scam free.

This means enough memory

to hold a bitmap for an entire integrated text and graphics page, and preferably two side by side bitmaps to double throughput. It means speaking Postscript. It means a near-infinite number of font sizes and shapes on line at any time, in quarter point increments from 2 point to 40,000 point, stretchable, bendable, and twistable in any direction.

If font cartridges are offered at all, they must work on several different brands of printer, must be size-independent, must be done as a \$19.95 retail user convenience service, and must offer the user a simple way to create his own custom font cartridges. The price of toner cartridges must also be dramatically reduced, either through volume sales or else through refilling options.

So what does all of this mean to you?

Just an opportunity goldmine. There are so many new and exciting possibilities, that I don't even know where to begin.

So, here is one tiny nook of one tiny corner of one tiny scam you might like to tap. You can now do custom and individual awards and certificates for eight cents each, complete with parchment, fancy borders, calligraphy, the whole bit. You can even do it "real time" where the names can go on right after the judges decide who wins what. There's even a sample certificate included in my free Applewriter/Laserwriter Demo Pack.

Just call or write.

Beyond that, get yourself a copy of either *The Postscript Programming Manual* (\$30) from Adobe Systems or else a copy of *Inside Laserwriter* (\$75) directly from Apple, which includes all of the Adobe stuff.

Next, log some time on a Laserwriter at your nearby quick copy center. Prices start at \$12 per hour, which has to be the dirt cheap bargain of the century for quality laser imaging.

How Can I Get More Room On A ProDOS Diskette?

I always try to cram all of my for-sale diskette products as full as possible. To me, it seems kind of dumb not to use all the available disk space when you are selling something. A few more demos, examples, or tutorials never hurt anything.

What can you do when you need just a "little" more room on a supposedly full ProDOS diskette?

First, if you have lots and lots of files on disk, chances are that one or more older versions or other unneeded stuff is lurking somewhere in the middle of the list. You will obviously want to flush these.

Second, if you have several disks, see if rearranging the contents cannot more nearly fill each individual disk. Dropping the ProDOS operating system, the formatter, and BASIC. SYTEM from successive disks in a multi-disk package can also help, if this doesn't overly inconvenience the user.

Third, if you have lots of disk files, you may be getting a DIRECTORY FULL error message, instead of the expected DISK FULL message. The magic number is 51 files. If the files are all short, you could still have lots of usable sectors left.

The cure here is to logically group the files and create one or more subdirectories. Each new subdirectory adds us to 51 additional files.

Fourth, note that a file or program of 511 or fewer characters requires only one ProDOS sector. A file of 512 characters needs three sectors. The "extra" sector is needed to hold the track and sector list for sub-

sequent blocks. Thus, a few characters above 511 can cost you dearly on overall diskette space.

The trick is to go through the directory and note each entry that needs three sectors. Then find the ones that have less than 600 or so characters in them. Finally, see if you cannot lightly edit the file to get it down to the magic 511 character size.

Fifth, any file of any length that has only a few more characters than a multiple of 512 would also be a prime candidate for light editing or compaction.

Finally, see if there aren't any other compaction tricks you can use. For instance, there's lots of different ways to stomp HIRES pictures down to much smaller sizes than you would expect. One very simple trick to pick up a free sector is to do a BSAVE HIRESPIX, A\$2000, E\$3FF7 instead of E\$3FFF.

The last eight bytes of a HIRES screen are invisible and do not appear on the screen, yet they cost you an entire extra sector for each picture.

My Customers Keep Bitching That My Software Won't Work. HELP!

Naturally, there is no possible way you could stay competitive in the software industry if you actually spend the time and effort needed to get your software working properly before you ship it. Besides, software buyers are expected to pay for the programmer's mistakes, education, an overall klutziness.

It's the American way.

Worse yet, software that actually works is suspect of being obsolete, and certainly could not possibly be state of the art. This will very seriously damage your credibility. Why, that would be almost as stupid as letting one of your programmers ever -- horror of ultimate horrors -- actually speak to your advertising people.

Heresy.

The first thing you want to do is to separate your customer service phone from the order phone. Select a suitable Sub-Saharan African nation for your customer service department and make sure that the employees only speak Swahili with a very heavy Icelandic accent. Also, be certain to hire a receptionist that has latent tendencies towards cannibalism.

But the quickest and simplest cure to unhappy customers is to print up some small and bright labels that say "BETA RELEASE" and attach them to all your diskettes before you ship. Beta release software is not supposed to work and your customers will be overjoyed in

participating in the leading edge of software development technology.

How Can I Put Two Different Monitors In An Apple IIe?

By now, it has become painfully obvious that the "enhanced" IIe monitor is pretty much useless when it comes to running older Apple software. And more than a few unfortunate epsilon minuses got sucked into letting an Apple dealer steal their old monitor ROMs when they attempted doing a so-called "upgrade."

Sadly, the "upgrade" is needed for future releases of software even if it utterly demolishes the value of most older software that you already own.

Both the old and new monitor chips are compatible with industry standard 28 pin 2764 EPROM chips by Intel or Hitachi.

The usual dual monitor solution is to take a mechanically similar but electrically double sized 27128 EPROM and put two monitors on it, one on the top half and one on the bottom. A quick and dirty way to switch between the two is to lift pin #2 from the socket and jumper clip pin #2 to ground for the "low" monitor and to +5 volts for the "high" monitor.

Figures one and two show us a cleaner and safer way to handle dual monitors at a cost of only a few dollars. You plug two adaptor sockets into our Apple where the CD and EF monitor chips are supposed to go. Then you plug 27128 EPROMs into the adaptors. A pair of switches is then flipped left for the high monitor and right for the low monitor.

One suitable source for EPROM programming is E-TECH Services, who give prompt and low cost work. Note that you have to send them the images of the code you want burned into both of your 27128 EPROMs.

The key to the adaptors is to use premium machined contact sockets that may be safely plugged into each other.

These sockets are held apart by machined contact DIP strips that give enough separation to make room for the switch. Be sure to use a slide switch and not a toggle switch, and be sure the SPDT slide switch is a "break-before-make" type.

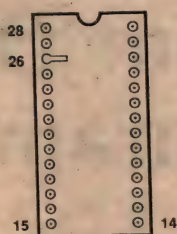
There are some obvious modifications or improvements you might like to try. You could replace one switch with a wire that reaches over to the center of the other switch on the other adaptor. This way, only a single switch flip will be

- 2 - 28 pin machined contact dip sockets
 - 2 - 11 pin machined contact dip strips
 - 2 - 13 pin machined contact dip strips
 - 6 - machined contact dip pins
 - 2 - miniature SPDT slide switches
- Misc: 6 inches of #24 green insulated wire;
6 inches of #24 red insulated wire;
epoxy or superglue; solder.

Figure One - Parts list for a pair of IIe dual monitor adaptors.

1. () Place the 28 pin machined contact DIP socket pins up and identify pin 26. Carefully bend pin 26 towards the center as shown.

- () Pins are numbered "backwards" from usual when they are viewed from the bottom.

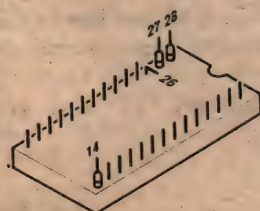


2. () Push a single bare machined contact socket pin onto pins 14, 27, and 28 as shown.

- () NOTE: In any soldering steps, snap an extra DIP strip onto the cool end of the pins being soldered. This keeps the pins aligned should the plastic soften.

- () Solder pin to socket at pins 14, 27, and 28.

DON'T GET ANY SOLDER ON THE PIN TIPS!



3. () Push a 13 pin machined contact DIP strip onto pins 1-13 as shown.

- () Push an 11 pin machined contact DIP strip onto pins 15-25 as shown.

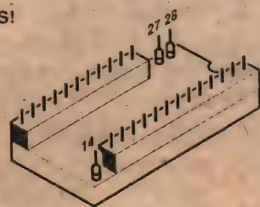


Figure Two - How to build a dual monitor adaptor for the Apple IIe. A pair of adaptors are needed.

Continued on page 111

Continued on page 111

MACINTOSH

Microvision Introduces MacViz

Microvision of Woburn, Massachusetts is proud to announce the re-introduction of one of the digitizers for Apple's Macintosh, MacViz.

MacViz is being introduced this month and orders for units are now being accepted. In November, 1984, I/O Video, Inc. introduced the Mac Private Eye Video Imaging System. The MacViz is that same unit with some specific improvements in the hardware configuration. The MacViz is now being produced by the co-developers of the Mac Private Eye. The company is being spearheaded by Paul Ramos, a co-developer who said: "The Mac Private Eye was a good digitizer for the Macintosh, but

the MacViz has some improvements that will enhance the overall performance and looks." Mr. Ramos went on to say, "before I/O Video shut their doors in May, we had plenty of orders for the Mac Private Eye, and Microvision intended to fill the needs of those customers who want and require a high resolution, real time video digitizer for their Macintosh Computer. MacViz is designed to meet the needs of a wide range of end users. From demanding engineers, detail oriented graphic designers or video artists, the MacViz is designed and built to fill their specific requirements. For those Macintosh users that must have simplicity of use,

real time speed and extremely good image quality, they are the people that will most appreciate the MacViz." (I/O Video, Inc. has been desolved and is no longer functioning as an active business.)

MacViz is a real time, high resolution digitizer that utilizes any NTSC, RS-170 video input signal. The MacViz has all the fine attributes of the Mac Private Eye, the largest image area, 512 x 512 pixels, 7" x 7" print out, on screen dynamic focusing and contract control, but engineering changes have been made to improve digitized picture quality and increase overall ease and simplicity of use.

The MacViz will be sold through mail order only. The price for the MacViz is \$299.00. The Mac Private Eye was being sold through dealers for \$595.00. This 50% savings, (between the Mac Private Eye suggested retail price and MacViz Mail Order Price), will be passed on directly to MacViz purchasers. MacViz will have a full warranty and will be backed by the original developers/designers, who are now manufacturers, Microvi-



sion Company. The cost is \$299.00 plus \$7.00 postage and handling.

For further information contact: Microvision Company,

P.O. Box 2371, Woburn, MA 01888. Telephone: (617) 254-1841.

Mention you read about it in *Computer Shopper*.

One Small Step For A Robot, One Giant Stumble For Robotkind...

by Les Solomon

This month I would like to use this space to discuss something that has been bothering me for a while. It has to do with a bit of a problem I (and possibly many potential customers) seem to be having with robots.

No, not that I have one of these peripatetic gear boxes grinding around the premises doing the wrong thing at the wrong time or muttering in some almost-incoherent language (why do all robots speak English with an almost unintelligible Swedish-like accent?), the problem is what I have been reading about robots.

Also, I feel that the main purpose of all present "true" robots is to amuse people, possibly educate them, but not to do anything really useful around the home and hearth. The latter may well be the reason that robots are not as popular as they should be.

What brought all this on is that every week or so, there are newspaper or magazine articles, or some TV programs, that have some words about robots. These discussions are usually complemented with photos of robots, and usually include an artist's imaginative renderings of "outer-space" strange-looking-clanking beasts doing who knows what to who knows who. But none of these discussions seem willing to tell the whole truth about robots.

Although I would like to

have a robot to perform some useful tasks around the house, let us first look at some real-world facts.

First, what is a robot?

It seems to me I remember reading someplace that a true robot--which also includes the anthropomorphic "android"--is a self-contained device having its own stored program, and capable of wandering around under its own power "doing its own thing."

However, this doesn't describe the bulk of the so-called robots that I see in the papers, magazines, or in TV interviews.

Most of these "robots" are actually a wonderfully articulated and programmed arm--belonging to what is called the "pick-and-place" persuasion--that is firmly bolted down in one place and performing limited tasks within a very limited area.

This type of robotic arm is designed to perform rote work, unsuited for a human, and that may be why these "robots" are usually seen "working" in automobile factories or performing dangerous tasks in noisy and smoky surroundings.

These "robots" are popular in manufacturing because they do not take coffee breaks, days off, work 24-hours per day, do not get sick or take vacations, and most importantly--work

by L.J. Kутten

Fall is rapidly approaching and the hoofbeats of a new Mac are rapidly approaching. Those who know will not speak on the record. Rumor control has called the new unit "Jonathan." Supposedly it will come with (1) a built in ten or twenty megabyte hard drive; (2) one megabyte of memory which can be expanded to two megabyte; and (3) expansion ports. This new computer is supposed to be "officially" announced at the January annual stockholders' meeting with delivery in the spring. Other rumors include a cheaper Laser printer, based on the Kyocera engine, and a new Imagewriter, built by Toshiba.

MacWorld Expo

The fall MacWorld Exposition was held in August in Boston. Unfortunately a lack of time (and money) prevented your Universe Master from attending. However *Computer Shopper* did have a representative there and he reported it

MacUniverse

was a smashing success with over 300 exhibitors. He estimated more than 10,000 people attended this three day festival of Macdom. Another MacWorld Exposition is scheduled for new January in San Francisco and yours truly hopes to attend. If you cannot wait, local MacFests are planned for Chicago and Minneapolis this fall. The Minneapolis Fest will be held September 25 through 28 at the Hyatt Regency Hotel, 1300 Nicollet Mall, Minneapolis, Minnesota 55403. The Chicago Fest will be held November 13th through 16th at the Arlington Park Hilton, 3400 Euclid Avenue, Arlington Heights, IL 60006.

New Mac SIG

The Source has established its first Special Interest Group and it is dedicated to the Macintosh and Lisa/Mac-XL computers. Called the MACSIG, it is the Source's response to Compuserve's Macintosh SIG. The Sysop is Walt Marcinko and his Source ID is SIG001.

This SIG is broken into 8 areas.

1. News & Information
2. SIG Bulletin Boards
3. SIG Members Directory
4. Mac Conferences
5. Catalog of Files/Programs
6. Submit Files/Programs
7. SourceMail
8. SIG Guide and Rates

The main areas of interest will be numbers 1, 2, and 5.

Number one, News and Information, contains information of general interest from the MACSIG Sysop. Here he will tell users of new features added to the SIG, special events such as contests, and so on.

Number two, the SIG Bulletin Boards, is very similar to the SOURCE's POST categories, but exclusively for the use of MACSIG members. The categories currently available are:

ADS - Commercial & private, buy/sell/trade.

Continued on page 120

Continued on page 62

One Small Step Continued from page 61

efficiently and cheap.

As an extra added bonus, these pick-and-place arms can be reprogrammed to perform an entirely different task merely by changing the software. In simple terms, as job requirements change, the arm can be "re-trained" in a couple of minutes.

We have also seen what are claimed to be "robots" wandering around in our local shopping malls. It takes only a brief look to see that these are of the "shobot" variety. In essence they are radio-controlled devices made to appear like a robot but actually they are the equivalent of an RC model airplane (or remote-controlled TV set) in a robot disguise. Shobots use conventional two-way radio to communicate with passersby.

Obviously, the prefix "sho" is for show business, since these little actors--with their attendants--are always found in some form of entertainment environment.

Which leaves us with the R2D2 type of physically independent, internally programmed machine which can rightfully be called robots.

Although R2 (and his ilk) are programmed to be friendly little guys and appear to be equally at home wandering around desert sands, rocky walkways, inside spaceships, etc., here is where the robotic

"little white lies" start.

Our hero, R2, uses wheels or small tracks to propel itself (himself, herself, whatever--I never did figure out R2's sex).

Well you might say, it's the wheels or tracks--and great engineering, sometimes called "trick" photography--that enable R2 to engage in these strolls around various planets.

But, the way I see it, the relatively small diameter wheels or tracks in R2's "feet" can work properly only on a relatively smooth billiard table surface.

When such a wheeled or tracked device encounters mud, shallow puddles of water, thick dirt, heavy grass, sticks or stones, it invariably comes to a grinding halt. Even indoors its wanderings are limited. Consider a shag carpet, a door jamb, or a simple change in floor height.

Thus, when it comes to taking even one small step for robotkind (even with a small riser), the robot reaches the end of its universe.

So why don't they use legs? Good question. If the beastie has two legs--like R2's golden buddy 3CPO, then you are implying a complex balancing action (gyroscopes, sensors, associated electronics and mechanics) beyond current devices.

If you are thinking multi-articulated limbs, you are also speaking of complex mechanics also not currently available. So at the moment, it looks like it will be a long time before robots climb stairs.

Besides Hollywood and a few educational facilities, several electronic-oriented companies are manufacturing robots in both finished and in kit form. Some, like the Turtle (and its variations), require a lengthy electrical umbilical cord between it and its associated computer which limits its excursions. Others like the Heath Hero and its younger brother feature programmable self-contained computers to perform certain limited functions.

But no matter what, all currently available mobile robots need a billiard table environment to wander around. And as my wife constantly points out, none of them clean the house or do windows, therefore they are useless!

But, there are some ways to make a robot serve some useful functions around the house. Let us look at a couple of relatively simple modifications that can be made to increase their value to the lady of the house.

This column is being written in the summer when most (male) humans are required to sprawl in a shaded hammock and guzzle cool beverages to avoid potentially dangerous heat prostration from the blazing sun. However, there is one minor problem. Who will cut the rapidly growing grass? If not the human, then why not the heat-insensitive robot?

Great, but what about the billiard table problem? How do we get around that?

Why not have the robot

climb aboard a large tracked cart? This cart, powered by its own heavy-duty battery can have tracks wide enough and long enough to accommodate the local ground conditions.

The motors driving the powered track can be easily interfaced to the robot computer via an edge connector that "makes" when the robot is firmly seated in the cart. Once this connection has been made, either automatically or manually, the robot's internal program can "drive" the tracks as required.

The front of the tracked cart should be equipped with a mechanical device that will clamp to the lawnmower being used.

Once this mechanical coupling has been accomplished, the robot's internal computer can be programmed to follow the yard layout, and presto--a real mechanical servant instead of a relatively useless perambulating box of parts!

Now consider using the robot with a lighter tracked cart to push a vacuum cleaner around the house. Just don't move the furniture unless you re-program the robot. Bet your wife (or mother) would accept a robot fast enough if it could do this!

Now for the windows. Consider using those "magnetic sponges" that you find in some hardware shops. These sponges are sold for the use of people who live in high-rise apartments and are afraid of leaning out of the window to do the outside of the panes.

Each of these sponges have a relatively strong magnet buried inside. One sponge is placed outside the glass window while the other is placed

adjacent to it on the inside of the glass window. Thus, when the inside sponge is moved, the magnetic attraction causes the outside sponge to follow the motion.

Of course, you do not need the outside sponge when doing only the insides of the windows.

The "arm" of the robot will have to be lengthened to reach the higher windows, but since there will be very little mechanical movement on the end of the arm, it wouldn't have to be built like Mr. America.

In fact, even one of those "multi-X" shaped extension devices will work. I cannot recall the name of these things, but they are usually made of wood or metal segments arranged in the form of a bunch of Xs joined together at their tips so that when the finger grips are closed, the X's extend out a considerable distance. The gripper on the robot's arm could be modified to accept this extensor.

The major problem is that many people have small area windows, and if this is your case, that is a problem that you have to solve. All I am doing here is suggesting some ideas.

Of course, there are many other uses for a robot, if you look upon the robot not as an end in itself, but as the basis for a composite electromechanical system that can be programmed to perform many and various useful functions.

In fact, if you have any good thoughts or applications of any available robotic device, drop us a line here at the *Computer Shopper*. Maybe we can get something going for the robotkind.

Copy Protection And Piracy

Another Opinion, Part 1 of 2

by Hal Nieburg

Copy protection for software is the bugaboo of the industry. There is an inevitable collision between the property rights of the vendor and the convenience of the product to the buyer. We witness a vigorous tug-of-war between these conflicting demands, much bobbing and weaving, and no clear outcome in sight.

In addition, there is an unrelenting arms race between the latest copy protection schemes and the scheme breakers. Commercial software to unprotect virtually any software is openly advertised at moderate cost, and is updated on a monthly basis. "This copying utility can only be used by licensed user to backup licensed software!" The disclaimer is there for the record; but who is to police the private activities of consenting adults? (Let's face it, minors are still

the greatest Hackers and copiers.)

The Arms Race

There is an old rule about warfare. A weapon system must be kept in the armory so long as the offense is superior to the defense. When the defense to that system becomes superior (cheaper or more efficient), then the weapon can be safely dropped from inventory and deployment. In the case of proprietary copyrights, offense (that is, illegal copying) clearly has the edge over defense (copy protection). What man hath wrought, other humankind may unwrought!

The fact is that the hopeless chase for an adequate defense only penalizes everyone by imposing greater costs and inconveniences. It is the puppy chasing its own tail. The copy-breakers trail behind the copy protectors by only a few weeks. The "unbreakable" ProLok or

SuperLok, for example, which last year many vendors added to their releases at considerable cost, were defeated by quick patches available at no cost on bulletin boards around the country. Ramkey or Nokey made their appearances and the surge of piracy continued to flourish.

Now the software writers are contemplating grotesque measures to stop the inevitable, including such things as self-destruct codes that will waste the original software if any attempt be made to copy it. The owner would, by his perfidy, lose all rights to replacement copies. He would be out in the cold and would lose his \$395 investment, without recourse. Many are seriously advocating these tactics, highly questionable in law, and downright immoral in every other respect. Escalating the arms race will

Continued on page 122

RGS WRIGHT® (Version 1.00) Word Processor Now Available For Macintosh Computers

Rio Grande Software, Inc. announces the availability of RGS WRIGHT +, a word processor that expands the capacity of the Macintosh and enables it to perform a variety of word processing functions. This user-friendly software package is designed exclusively for the Macintosh Computer and is as easy to use as the Macintosh itself.

RGS WRIGHT + features a 100,000-word dictionary, thesaurus, document indexer, and a word library to assist users in communicating accurately and effectively. Also included in the package are some database capabilities, a math module, and a graphics package; provides flexibility for merging data and charts into new documents and existing documents. On-line help and an "UNDO"

function are built into the system, so it's not a bother to make mistakes. User interface with MacWrite and MacPaint, along with multiple printer interfaces, make the RGS WRIGHT + adaptable to a wide range of word processing environments--for personal or professional use.

RGS WRIGHT + is compatible with many hard disks including Corvus, Davong, and Tecmar. The RGS WRIGHT + (Version 1.00) Word Processor is available from local computer retailers for \$195.00, or it may be ordered from Rio Grande Software, Inc. direct.

For more information contact Rio Grande Software, Inc., 221 Nolana, P.O. Box 5906, McAllen, TX 78504.

Mention that you read about it in the *Computer Shopper*.

ATARI

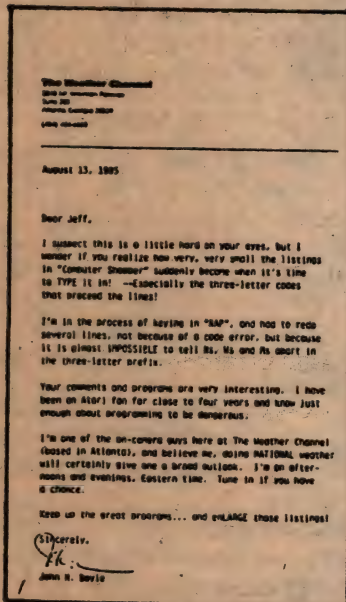
Applying The Atari

by Jeff Brenner

With Thanksgiving Day this month and the holiday season approaching, lots of you will appreciate this month's feature program — a recipe manager/calculator. This month's column also brings the *Mailing List* additions that I promised and ties up some loose ends on the numeric keypad program.

New Listings

Whenever a lengthy program is listed in this column, I get letters complaining about the difficulty of typing them in. One clever reader, John M. Doyle (Atlanta, GA), even sent in a miniature letter to make his point (see *Letter 1*).



Letter 1 (Actual Size)

As I have mentioned in the past, after I submit the program listings for publication, they're at the mercy of the editorial department, which shrinks listings to fit into the available space. *Program Perfect* was developed to help readers enter programs accurately despite the small size, but apparently the smaller *Program Perfect* codes become almost unreadable when they are reduced. This month, I have implemented two changes in the program listings: The *Program Perfect* codes are larger than usual, and the program lines have been spaced further apart. Let's hope this makes program entry a little easier until we can get more space for listings. If any readers have other suggestions for making the listings more readable, please let me know.

Newsletters

Two more Atari users' groups newsletters came in the mail recently. The S.T.A.T.U.S. Newsletter is printed by the Southside Tidewater Atari Technical Users Society (4836 Honeygrove Road, Virginia Beach, VA 23455). The CAUG Newsletter is printed by the Charlotte Atari Users Group (5911 Brookhaven Road, Charlotte, NC 28210). Both of these users' groups participate in a newsletter exchange program — they will send a copy of their newsletter to any group that sends in its newsletter. This is a great idea as it allows groups to exchange information and ideas and to see what is going on with other Atari users' groups across the country.

Info From Readers And BeyondQues

The mail for this month brings answers and updates to all the questions published in September's column. Jim Cassout had asked about the driver routine to make his printer more compatible with Atari-Writer. I suggested a "Printer Formatted Data Disk" from At-A-Glance. Thanks to Gordon C. Willis (Morehead City, NC) for informing me that the original author of the printer driver routines is making them available for \$10 each, postpaid. Gary W. Furr (P.O. Box 1073, Mountain View, CA 94042) has driver routines for over 60 printers. If you have been unable to get a printer driver for your particular printer, there's a good chance that Mr. Furr will have one that's compatible.

Darwin K. Garrison's letter had asked about a genealogical program for Atari computers. Thanks to Leo H. Kordsmeier, Jr. (Little Rock, AR) and to Al Crespo (Bakersfield, CA) for writing to tell me about *The Family Tree* by Harry Koons. Mr. Crespo says that "you can record and access six generations and save up to 24 generations on one disk." The program also lets you print out your pedigree charts. *The Family Tree* is \$19.95 plus \$3.00 shipping from Antic Publishing (524 Second Street, San Francisco, CA 94107). Additionally, Dan Sweda (Brookville, OH), treasurer of the A-BUG-BYTE users' group, says

his group has a genealogical program available for \$5.00, postpaid. That's from A-BUG-BYTE (10790 W. National Road, Brookville, OH 45309).

In September's column, Terry Joslin asked how to access the full 128K RAM on the Atari 130XE. Atari itself provided the answer by sending me the DOS 2.5 disk, which contains a routine that lets you use the 130XE's extra memory as a RAM disk. Unlike DOS 3, DOS 2.5 supports both single and enhanced density modes and is compatible with DOS 2. DOS 3 owners can obtain DOS 2.5 by sending the DOS 3 diskette to Atari (Atari Customer Relations, P.O. Box 61657, Sunnyvale, CA 94088). There is no charge for the swap. The DOS 2.5 diskette also contains a utility to convert DOS 3 files to DOS 2.5, so your DOS 3 files can be made fully compatible with DOS 2.5. A small booklet, included with DOS 2.5, summarizes the various options available on DOS 2.5. More detailed instructions are in the *ATARI DOS 2.5 Manual* available from the Atari address above for \$10 plus \$2.50 shipping.

Atari 130XE Word Processors

In addition to a utility on the new DOS 2.5 diskette that allows the use of the Atari 130XE's full memory, two 130XE-compatible word processors should be available this month. *AtariWriter Plus*, from Atari, contains a 48K/64K version on one side of the diskette and a 128K version on the other side. It features a built-in spelling checker, a mailmerge data base, double column printing and a printer driver editor so you can make the program compatible with your printer. It's under \$50. *PaperClip*, from Batteries included (17875 Sky Park North, Suite P, Irving, CA 92714), will be available in a 130XE version. For \$10, owners of the 48K *PaperClip* can trade it in for the 130XE version.

Numeric Keypad Problem Resolved

In the July and August columns, I published three programs for the numeric keypad. While the programs worked fine on the older Atari 400 and 800, there was a problem on the XL and some XE ma-

chines. The ESC key was being read as a zero. Strike one. In my haste to correct the problem and to end a flood of letters from readers who "tried typing in the program eight times on two different computers and with three different keypads," I published in October's column what I believed to be a simple solution. A little further testing however, revealed that this did not completely fix the problem — any key pressed after the ESC key would be read as the-ESC key. Strike two. I get one more chance, right? This time I am presenting a completely rewritten keypad program that will read the ESC key perfectly. In addition, the new program allows the numeric keypad's keys to respond better, so we're not just making corrections — we're making improvements! The new keypad program responds to a key that has been pressed before the previous one had been fully released. This could happen if you entered,

say, the numbers four, five, and six in a row very quickly. As soon as the previous key is released, the character for the new key is displayed. On the older keypad programs, any key pressed before the previous one was released would be ignored.

The program listed under *Keypad Program 3* takes the place of Program 1 and Program 2 in July's column. To make Program 3 read the Y key as a comma (as Program 2 did so that you can enter data lines easily), change line 160 to:

160 Data 32

Programmable Keypad Revision contains the lines to be changed on August's *Programmable Keypad* program for this correction. If you're using *Program Perfect*, first enter lines 90 through 220. When *Program Perfect* erases itself from memory, LIST "C:" (for

Continued on page 180

Good News For Atari ST Owners

by W. Rostek

You may remember last month's article, where we voiced concern about Atari having some quality control problems and limiting distribution of the new machines. We wondered just how available the machines would be because of Atari's marketing plan of only shipping to approved ST dealers, when at that time there were no approved ST dealers. Well, this month we have good news for all Atari ST users. Atari Corporation qualified a whole bunch of dealers, and they seem to have worked out their early QC problems. Also there have been some very interesting hardware and software developments.

The best news hardware-wise is that second disk drives are now available. In addition to the single sided drives that were known to be on the way, we also started seeing the double sided drives that give you over 700K of working room on a single disk. There still aren't any hard drives available, but several people are promising

they will be shipping "real soon." Of course we can't help but remember that these have been coming "real soon" ever since Atari started talking about the ST series, and we have not seen any yet. One stop-gap method if you must have more disk space is to use two double sided drives, giving you over 1.4 megabytes of free disk space.

If you aren't worried about voiding your warranty, and you're handy with a soldering iron there are some hardware modifications that may be for you. Instructions are available for piggybacking another half megabyte of RAM onto your 520 ST, which would bring the machine up to a full Megabyte! You can also find instructions for adding a battery back-up circuit for the clock. We have also seen instructions for adding an IBM 5¼ drive to the system. The instructions for these mods are floating around the country on various BBS's and you should find them by checking with your local BBS

Continued on page 173

I Own An Atari 520ST Computer

by Clay Houston

I am not impressed with the delivery schedule of the 520ST as my original estimate was as early as April 1; APRIL FOOL! Finally, on August 19 I got THE CALL to bring money. Some of my friends had either went through a computer club or ordered the black and white monochrome monitor and got theirs three weeks earlier, but that didn't

really make any difference. There was no software available. The package contains the System disk and a Logo disk which allowed a little playing with our new toy. One of my friends just put his back into the box until some acceptable software arrived. As a member of both CONTACT, the Atlanta ATARI Users' Group and the Atlanta Computer Society I do get in on some "official" rumors. I

did, however, buy my unit through the local Atari retailer, Versatile Video of Dunwoody Village because there was not that much difference in price, I already had a deposit down, and they take care of the 90 over-the-counter warranty. The CONTACT user group received a letter the "the BASIC language would be shipped the first part of September" and reiterated that "the OS ROM chips would indeed be supplied when ready, FREE OF CHARGE." I know the BASIC language applies to all of us purchasers and assume the CHIP does too. As disappointed as I am about the delivery schedule and the software availability, the ATARI 520ST looks like it's going to be a FANTASTIC computer!

Development Package

The first thing I did was to order the 520ST Development Package from Atari. I did this by sending a \$300 money order along with my computer SERIAL NUMBER to Atari Corporation, 1196 Borregas

Avenue, Sunnyvale, California 94086, ATTN: Richard Frick. The package contains five disks including a 'C' compiler, an assembler package and about 2000 pages of documentation. It takes about three weeks for delivery of the pack. Because I was not sure how long the package would take to get here, I also ordered the Haba 'C' package. More on this later.

Getting Set-Up

The hardware package was complete and hooked up with no problems. I have the \$1000 package which includes 520ST, the SF354 single sided 3½ inch disk drive, the SC1224 color monitor, the mouse, two power supplies, a small instruction manual, and all cables necessary to make it all run.

I hooked it up and turned on the power with the system disk installed. It began to boot. After a little whirring a green display with white border came up. Three ICONs, two floppy disks and a trash can appeared on the left side. On the upper left there are four words: DESK, FILE, VIEW, and OPTIONS. The Mouse controls a little arrow, when touching these words, deploys a menu. I touched "Desk" and a drop-down menu appeared. Then I moved the arrow down to "Control Panel," and then pressed the left Mouse button. And behold, the panel layout that allowed me to pick the screen colors, the time delays, etc. I placed the arrow on the upper left hand corner of that display at the X-box and clicked, behold, it disappeared and the baseline menu returned. I then arrowed the top floppy ICON, clicked the Mouse and the ICON turned black. Moving the arrow to "File" and down to "Open" and clicking el Mouse, a busy little "bee" appeared followed by a list of files on that disk presented as

ICONs as shown in Figure 1. I stopped here to work on the printer cable so I could get some copies to study.

Interfaces

Next I configured two cables. The first one was to my Epson MX-80 printer. Currently, having an Atari 800 interfaced with an ATR 8000 which uses a card-edge printer connector, I had to start from scratch. Both the 520ST and the MX-80 uses the Centronics 25 pin connector. I was able to find them at a local electronic parts store at a reasonable price and I had some old round cable. Being rather sloppy about soldering, I really hated to tie \$1000 to \$500, ie, computer to printer. I admit that I was sloppy, but did a careful continuity check with the volt-ohm meter to assure that there were not cross-connections and success; it worked the first time. I wanted to work on the RS-232 next but just had to experiment with the printer.

Printer Dumps

Now having the printer available I tried the screen dump buttons. This is done by pressing the CONTROL and the HELP keys at the same time. Behold, Figure 1! I put the arrow on the upper left X-box and the screen returned to the baseline.

Screen Control

Then back through the DESK and CONTROL PANEL followed by the CONTROL, HELP key and behold Figure 2 which appeared in a variety of colors. Using the Mouse various adjustments can be made (and saved) to the baseline layout. You can place the arrow on the time, click and type the current time of day, click again and an updated time is presented continuously. The date is done the same way. You can adjust the

Continued on page 178

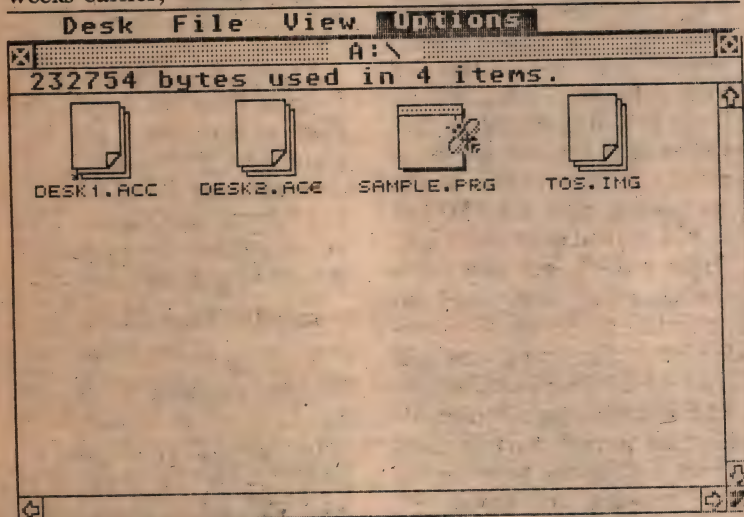


FIGURE 1

Jackintosh Logo

by Frank Tymon

Introduction

LOGO has never been so easy! Atari and Digital Research have integrated LOGO with GEM and hosted the result on the Atari 520ST computer. The combination is a user - friendly implementation of a familiar language.

LOGO implementations differ from machine to machine. The Atari version likewise has its own idiosyncracies. These are primarily driven by the existence of 520ST peculiar capabilities. The capabilities include the GEM operating system, the Mouse, and the specific drop-down windows developed for this system.

We'll return to these a little later in the review. But first lets consider the version of LOGO implemented on this system. Atari LOGO. As a matter of interest, the Atari Manual furnished identifies the version of LOGO as Atari LOGO, the LOGO dialogue screen reflects the words, "DR LOGO FOR GEM."

Regardless of credits the product is an impressive combination. Fortunately the LOGO commands corresponds closely to those shared by other com-

puters. However, there are differences. These are partially the result of the developers' perspective, partly due to the influence of GEM.

Arithmetic Operations

The arithmetic operations provided encompass the usual +, -, *, /, as well as exponentiation. The usual trigonometric functions are included, as are such standards as INT, LOG, ABS, ROUND, etc. RANDOM is provided as well as RERANDOM (which reproduces the previous random sequence). Radian to degrees and vice versa are provided.

Condition And Control

The condition and control functions adhere closely to the mainstream of LOGO implementations. The exact instruction may be a little different. For example, Atari LOGO uses BYE instead of GOODBYE.

Miscellaneous

Atari LOGO has a straightforward procedure copy routine, COPYDEF. It also has a suffix, P, widely used which results in return of a true or false. For example, NUMBERP "2" would return

the value TRUE.

PATH AND SETPATH are used to identify the current disk drive and to change to an alternate one.

CATCH and THROW identify special conditions and respond to their existence.

Graphics

Graphics operations correspond closely to those in other LOGOs. There are differences associated with the use of GEM. I'll consider some of these later when we walk through a typical turn-on procedure.

One difference in the Atari LOGO is access to the turtle. The position, the Mouse buttons' conditions, and the position relative to the viewport can all be monitored.

Walk-Through

There is no attempt here to cover all the Atari LOGO instruction set. Suffice it to say that there is a great deal of flexibility built into the instruction set. Some of this is illustrated in the following paragraphs.

Loading and using LOGO is easy. The GEM pull-down and pop-up windows display much

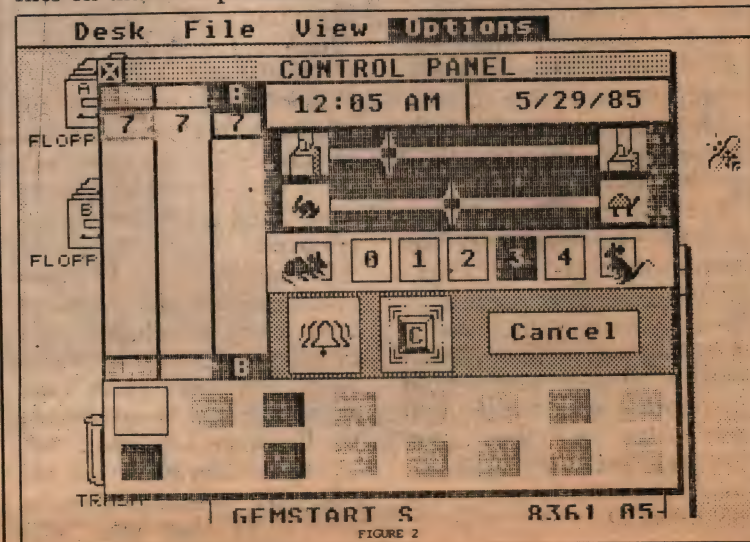


FIGURE 2

Continued on page 172

SANYO

Just For Fun: Three Graphics Programs Exclusively For Sanyo

by Dr. Michael Ecker

After working with BASIC, your data base, word processor or spreadsheet, you need a break! One pleasant diversion is to play with your Sanyo 550 or 555, with you as artist, and it as paper. In this article I will look at three such programs, ranging in price from \$20 to \$100. Each has certain advantages and disadvantages when it comes to price, speed of graphing and loading, ease of use, and drawing features, and I'll share what I've learned from reviewing these.

Draw 'N Doodle, Sanycad, Picasso

Overview: Of the three packages considered here, Draw 'N Doodle at \$20 is the least expensive, Sanycad at \$100 is the best for drafting, and Picasso at \$100 is my all-around favorite for drawing. Of the three, only Picasso is copy-protected, and it is not hard to figure out why. However, MichTron, the manufacturer of Picasso, does provide two disks with the main Picasso file, so purchasers have a backup already. It appears that you cannot make a diskcopy backup, but you can copy all the files. This is most easily done by using, on a two-disk system, COPY A:* B: exactly as shown. However, one of the original key disks must be in drive A in order to use the "copy." Still, this is better than nothing. Why? Well, you can at least save some wear and tear by using the originals just to load the main PICASSO.COM program.

All these programs allow you to draw graphics on the screen. If you have a screen dump program (such as MichTron's Freeze Frame, A-OK's PrintScreen 550, Key Software's Snapshot, or any of the others), then you can dump the graphics to your printer with each of these programs. I won't comment further on the "dumps" since I will be looking at such programs in a future column, but I will add that all seem to have a small question of circularity of the circles. That is, many of the hardcopies come out looking like ellipses (ovals) on your printer, even though they appear circular on the screen. You may also wish to change

the dipswitch settings in your Sanyo if you're using monochrome and have not done so. (All the programs and the Sanyo manual provide instructions on this.)

The kinds of things you can do with all these programs include drawing lines, circles, boxes, filling in, using color, etc. Since I won't have my color monitor I just ordered available until later, I will have to fill you in later on the results. In any event, all these programs allow you to save your artistic gems and awe-inspiring creations for posterity, and all of them come with some sample pictures on the disk. I personally found the ones on Draw 'N Doodle and especially Picasso to be quite breathtaking. You will, too, except that you may, like me, feel like a clod when you compare your results to what comes on the disks. In any case, keep in mind that these programs won't convert you into an artist by themselves, even though they'll do a lot for you. That said, let's look at the programs individually.

Draw 'N Doodle

This is a BASIC program. As such it is somewhat slow. To use this program, you first load BASIC and the program in the usual way. The disk I received contained the program DRAW.BAS and two demo pictures. From Basic Ready, just type the words: RUN "DRAW" (the end quote and the extension .BAS are not necessary, by the way) and the program will load. This is all covered on the last page of the instructions, and experienced programmers could have guessed this without even consulting them. An opening title page introduces you to Draw 'N Doodle, and invites you to decide whether or not you want directions. These on-screen directions complement—almost match even—the several pages of printed instructions which accompany the disk. I did not like the beep which signals you to hit another key to read the next page of directions on screen, so I was glad that SoftSol has allowed the user his or her choice of whether or not to go through

them. You now have a screen with a summary of the basic options at the bottom, and a crosshair locator. I decided to try the program without really reading the directions. Most of the time, I had no questions, so the program is fairly easy to use, with the commands summarized. Although I was initially bothered by my inability to put the program right away into joystick mode, I soon discovered that if I hit the Return key first, the crosshair would disappear and the keyboard would indeed become active. Moreover, further checking showed that the directions do explain this, so the fault there was mine, not the program's. One of my first personal preferences was to draw a few circles. In fact, these are ellipses more generally. By playing with the pseudo-mathematical "circle ratio" used by Sanyo, SoftSol and others, you can experiment with getting truer circles. You'll get a kick out of it, I'm sure. Next, I played with the joystick option. While you don't need a joystick, it certainly is nice to have with a pro-

gram such as this, so this program may give you an extra excuse to buy one if you've been holding out up until now. To activate the joystick, you must type the letter "J" and make sure that a message indicating joystick mode comes on. To deactivate the joystick, thus reactivating the keyboard and/or the numeric keypad and arrows, type "J" again. In other words, you toggle this mode on and off with this key. With the joystick deactivated, you can access the other commands for color control (shade control on a monochrome monitor), boxes (rectangles), lines, Symbol (the BASIC command used for large characters and found only on the Sanyo), painting, and various disk operations, such as loading and saving pictures. But one thing that detracted a bit was the long wait of well over a minute just to load one picture. I noticed that these use up a lot of memory. One picture can easily take up 50,000 - 75,000 or more bytes on your disk, as is the case with Picasso. When I originally looked at this pro-

Continued on page 66

The Silver Box

by Richard Fujita

The Case of Turbo Pascal

I am not a real BASIC devotee, but possessing a high level language like the BASIC is a nice convenience. When you want to write a short, simple program in the shortest possible time, a language like BASIC could be a good choice. Unfortunately, the Sanyo BASIC is a tragically immature language. I don't know if the language has enough power to write a database program. But, in the version I currently used, the Sanyo BASIC version 1.32, a good percentage of the reserved words are still left empty.

Since the Sanyo BASIC is suffering from Multiple Sclerosis, and not many people have GW BASIC yet (and some despise it for one reason or other), the best alternative high level language for the Silver Box would seem to be none other than the Turbo

Pascal version 2.01B, or the recently released 3.01A, the IBM PC version.

The IBM version of 3.01A works only with the VB-550 without a patch, but in a manner shocking to me when I tried it for the first time. The screen blinks, and the update is complete, finished! Without the VB-550, the IBM version editor refused to work with the stock MBC-550 series.

Turbo Pascal MSDOS version 3.01A (note the same subscript) works fine except that its editor will not scroll the screen. This means, as I said before, when you insert a line, the screen below that line shows phantom lines. These phantoms do not reflect what you actually have in the text buffer. If you move the cursor in this area, the cursor jumps word to word exactly as it should do, but with apparent disregard for the words and lines displayed on the screen.

Since the version 3.01A has some new, important features

such as absolute address operations and controls on file buffer size, I was using the version 3 while hating the scroll-less editor every minute of using it. Every time I inserted a line or two, to get a fresh screen, I had to move to the previous page and come back. This I call manual "turbo" refresh.

I wrote most of my Pascal programs using Newword, to reduce dependence on the Turbo editor when I did not have the VB-550. After a trial run, I used the Turbo editor to make minor changes only.

The aggravation was mounting, and I was ready to write a shell program to remedy this once and for all when I got a letter from Victor Frank, of the "Sanyo PC Hackers' Newsletter," with a copy of his August newsletter, which changed the whole picture. It contained a letter from Jim Pelley, of Eugene, Oregon. He gave us all - the Sanyo Lovers - a great cultural and engineering asset.

His patch works and works fine.

I was trying to convert the MSDOS version first, but the Pelley patch published in this newsletter modified the IBM PC version which is unquestionably better for Sanyo users since this version contains some graphic extensions which are compatible with the Sanyo Silver Box. He also reports that he is working on rewriting the whole Turbo Pascal graphic modules.

Anyway, the patch for the IBM PC version 3.01A works, and it solved the problems beautifully. Jim had precisely fitted it in the space of two subroutines in the editor, which wrote the text onto the video RAM area after waiting for the retrace period to produce flicker-free display, which is not needed if you use INT 10, the bios video interrupt, to write text on the screen. This is the best approach to interface with the

Continued on page 66

Just For Fun Continued from page 65

gram I was still using only single-sided drives, so I could not store many on one disk. I trust that most Sanyo users, like me, have now upgraded to double-sided drives or gotten only the 550-2 or 555-2 models (i.e. the models with the double-sided drives).

The program comes with a Help command to review the directions. The little manual is adequate, with just a few typos or other errors. One thing that I remain unclear about is a means of erasing part of the drawing. Of course, one way is to change the color to 0 (black) and try to draw over what you want removed (good luck!). But it would have been nice to have some other means. All in all, I did find Draw 'N Doodle fairly pleasant to use and fun, although not as fast, flashy or exciting as Picasso. Its main advantage is the \$20 price. My recommendation is to get this if you can't spring the \$100 for Picasso and don't need the drafting features of Sanycad.

SoftSol, P.O. Box 42096, Las Vegas, NV 89116-0096; for Sanyo 550 or 555 with at least

one disk drive, 256K; joystick optional; \$19.95 plus \$1 shipping and handling; sales tax for Nevada residents only.

Sanycad

Sanycad is a computer-assisted drawing or drafting program which may well be suitable not just for hobbyists and those of artistic inclinations, but more professional users as well. At least such is the outlook of Computer Associates in its release for this interesting software package, which is perhaps best described as a cross between a drawing or painting program, on the one hand, and a professional drafting program on the other. Indeed, after reviewing it, I still can't make up my mind as to which is the better description.

The copy that I received consisted of two single-sided diskettes and a manual of about 30 pages. The first disk contains the main programs - in BASIC, but unlistable - and the second contained some small pictures which had been saved. Although small, these little images or overlays can be superimposed to create more impressive and involved drawings, particularly in conjunc-

tion with some powerful commands for moving and duplicating found on the drawing menu. For my convenience, I created a system disk containing the program and files, plus Freeze Frame. With an Autoexec batch file, I had a self-booting system disk. With the menu structure of Sanycad, I just followed a few directions, and then was ready to begin.

First, I used the on-screen tutorial, which provided me with most of what I needed to know. True, I made a few mistakes, but I can't fault the software. The program responds about as quickly as can be expected from a BASIC program involving graphics. The manual filled in some gaps in a reasonable way. It was adequate documentation-wise, although there are several typos or other grammatical errors which could use touching up. The manual does offer a friendly tone of willingness to help, and Computer Associates will call you back if it has to research a question for you.

One additional feature of Sanycad is a BASIC subroutine to allow you to use pictures you create and save in your BASIC programs. At review time, I did not have time to check this,

but it seems like a nice extra.

In actual use, you have access to a main menu of options, a drawing submenu. One particular feature with which I was impressed is the ability to undo the last action. For instance, if you just added a line which you now decide you don't like, you can erase it. Sometimes, this erases part of something overlapping, but you can have Sanycad redraw the picture. You can magnify shapes, duplicate them and even move them. You can add text - courtesy of Sanyo Basic's Symbol command. There is windowing capability, and room for 24 screens in memory on a 256K machine. I like being able to use the arrow keys to move about the menus at the bottom of the screen, although the first letter of the command was often faster. I was sorry that a joystick is not supported. Still, it was not too inconvenient to use the keyboard, primarily the arrow keys to direct the crosshairs cursor.

One nice little extra which I will have to try with other programs is the use of the tab key (that's the key with the left and right arrows on it) to toggle between moving the cursor one pixel or eight pixels at a time.

I was disappointed to see that, after virtually every action, it kept defaulting to one pixel, as this is very slow movement, and I'm an impatient sort.

There are other features which I have not touched on, such as the use of dimensioning (e.g. for drafting), but one can never cover everything in a small review like this. The most important question is whether you should buy it. This returns us to whom this is intended for. If you are only interested in some hobby play, a hundred bucks is a bit steep for the privilege, even though it was fun, since I would prefer Picasso. So, I would have to incline toward recommending this program for those who might use the program more professionally: some kind of art, drafting or the like. For them it may be that the program will be helpful in their professional endeavors.

Computer Associates, Inc., Box 683, West Fargo, ND 58078, (701) 281-0549; any Sanyo 550 or 555 with at least 192K; 256K recommended; \$99.95. There is also a plotter option available which I did not review.

Continued on page 150

The Silver Box Continued from page 65

stock 550/555 for speed.

To apply the patch, copy all of the programs on the Turbo Pascal distribution disk to a work disk that contains the DEBUG.COM, placed in the drive B, by typing:

{B>}COPY A:*. *
(The wave brackets { and } illustrate computer response. Do not type them. Finish entries by typing a return at the end of each line.)

{B>}DEBUG TURBO.COM
{—}S5000,6000,74,16,8B,CE
(The above is a search for the exact location to put the patch)

{BF2:5191}
(Disregard the segment address. If you get 5191, you have the same version as I have. If Borland made minor changes since the first version, the version 3.01A, the offset address you get may differ somewhat. Use the offset you got instead of 5191, if it so happens.)

{-}A5191

{BF2:5191 }JZ 51C0
(The operand address should point to a "C3." If location 51C0H in your version does not contain "C3," let it point to any close location that contains the opcode.)

{BF2:5193 }PUSH BX

(From here the computer response is omitted.)

PUSH DX

MOV DI,SI

SHR DI,1

MOV SI,4EE

MOV AX,BP

SHR AX,1

MOV BL,50

DIV BL

MOV DH,AL

MOV DL,AH

MOV AH,02

INT 10

LODSW

MOV BL,AH

MOV CX,01

INT 10

MOV AH,02

INC DX

INT 10

DEC DI

JNZ 51AC

POP DX

POP BX

RET

This is the end of the patch. Now save the patched Turbo Pascal by first typing empty return to terminate the assembler, then type:

{-}W

{Writing 9AF7 bytes}

{-}Q

{B>}TURBO

to test the saved version with the patch.

For further explanation of this patch, get the August 7 issue of this excellent newsletter by Victor R. Frank, 12450 Skyline Blvd, Woodside, CA 94062.

Turbo Pascal is such a nice language system regardless of price. Sanyo users, as well as other computer users, cannot ignore this language of 20th century computers. With this patch now available, which makes Turbo Pascal fully compatible with the Sanyo Silver Box, you should get the IBM PC version of Turbo Pascal 3.01A, but not the MSDOS kind, which is not patchable.

Your requirement is MSDOS 2.11 and double-sided drives, preferably with 256K RAMS installed to run large user programs such as CALC.PAS while keeping the editor and compiler in memory.

At the current level of 64K RAM prices, all readers should have all the RAM sockets filled to the capacity by this time, although some people will undoubtedly find ways to install 256K DRAM chips instead of 64Ks in your Sanyo, thus increasing the total RAM size to 512K or more. I've ordered 40 256K DRAMs. When they arrive here, I will start my own experiments. In issues of the *Computer Shopper*, you will see how it can be done.

Regarding VB-550 And A New Power Supply

The expected review of the VB-550 color board and the story of a new switching power supply I installed in my Silver Box will not appear this month because of the special time sensitive reports I had to include in this issue. But they will be coming your way in the next issue of *Computer Shopper*, the fun magazine of computer lovers. As I said in the chapter for Clones, the VB-550 is a must for a serious Sanyo user.

Bargain Drive Section:

Options and More Options

RE: TEAC FD55BV-06-U

I wish to add a few corrections and tell you about my experience with the TEAC FD-55BV-06-U, a DSDD drive, as a post script to my last report on this drive.

The two drives I've tested worked perfectly on my test bench, being hooked up to my ancient S-100 computer with

CCS2244A controller. The drives also worked just fine in a true IBM compatible machine, but I should admit I bit dirt on these drives. They didn't work in the Sanyo! The scope verified that the read data looked fine, the motor turns when accessed, the LED lights up when selected; yet, they refused to work, or more precisely, the Silver Box had rejected them.

After struggling several hours the following day, I discovered that both of two option selections designated XT and RY inhibits outputting the READY signal. My S-100 ignores it, the IBM PC ignores it, but not the Silver Box. If you had the same difficulty as I had, remove the jumper from XT option. This will produce the READY signal at pin 34 of the drive interface connector. I had assumed that the option name "RY" stands for READY, but this option disabled the READY signal when a jumper was installed.

One more piece of information to add is the explanation for FG option. I should have known the name. It means Frame Ground, and you see the name often in power supplies. The option connects the ground line of the drive interface electronics to the frame.

The Sanyo MBC-550/555 uses a metal cabinet, and the cabinet is connected to the power line ground through a three wire power cord. In this

Continued on page 143

MOST NEEDED CABLE ASSEMBLIES

DIP-16 ROUND JUMPER AND EXTENSION CABLES

For use as terminating cables or extensions mating with conventional 16 pin dip sockets or plugs. All are fully populated with 16 conductors throughout. All terminations are fully molded for many years of useful service. Phosphor bronze male pins are .016" X .032". ML16PSC Coiled cord is 22" in normal unstretched position.

MODEL	LENGTH-FT.	GENDER	1-9	10-24	25-99
ML16PP-1	1.0	Male-Male	6.85	6.23	5.89
ML16PP-2	2.0	Male-Male	7.15	6.51	6.15
ML16PP-3	3.0	Male-Male	7.45	6.78	6.41
ML16P-1	1.0	Male	3.95	3.59	3.40
ML16P-2	2.0	Male	4.25	3.87	3.66
ML16P-3	3.0	Male	4.55	4.14	3.91
ML16S-1	1.0	Female	3.95	3.59	3.40
ML16S-2	2.0	Female	4.25	3.87	3.66
ML16S-3	3.0	Female	4.55	4.14	3.91
ML-16PS-1.5	1.5	Male-Female	6.95	6.32	5.98
ML16SS-1.5	1.5	Male-(2)Female	11.45	10.42	9.85
ML16PSC-4	4.0*	Male-Female	8.95	8.14	7.70

*Coiled Cord - 22 in. unstretched

DIP-16 FLAT JUMPER CABLES WITH MOLDED CONNECTORS

MLF16PP-05	0.5	Male-Male	3.30	3.00	2.84
MLF16PP-1	1.0	Male-Male	3.60	3.28	3.10
MLF16PP-2	2.0	Male-Male	4.20	3.82	3.61
MLF16PP-3	3.0	Male-Male	4.80	4.37	4.13
MLF16PP-4	4.0	Male-Male	5.40	4.91	4.64

PARALLEL EXTENSION CABLES WITH CENTRONICS TYPE CONNECTORS

CE36MM-5	5.0	Male-Male	30.50	29.28	27.76
CE36MM-7.5	7.5	Male-Male	34.25	32.88	31.17
CE36MM-10	10.0	Male-Male	37.50	36.00	34.13
CE36MM-15	15.0	Male-Male	44.00	42.24	40.04
CE36MM-25	25.0	Male-Male	57.50	55.20	52.33

CE36MF-5	5.0	Male-Female	30.50	29.28	27.76
CE36MF-7.5	7.5	Male-Female	34.25	32.88	31.17
CE36MF-10	10.0	Male-Female	37.50	36.00	34.13
CE36MF-15	15.0	Male-Female	44.00	42.24	40.04
CE36MF-25	25.0	Male-Female	57.50	55.20	52.33

PARALLEL CENTRONICS TYPE CABLES TO IBM-PC PRINTER

CMX6-IBM	6.0	Male-Male	39.95	38.35	36.35
CMX12-IBM	12.0	Male-Male	44.95	43.15	40.90

Note: We Stock a Most Complete Line of Standard Cables

DATA COAXIAL SWITCH

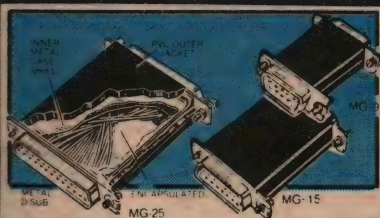
- Rugged Build
- Fully Shielded
- AB or ABC Types
- Low Contact Res
- Mounting Flanges
- Metal Construction
- BNC or TNC & Wang
- Center conductor switches
- Shield Isolation maintained

MODEL	FUNCTION	TERM.	EACH
DS12B	SPDT AB	BNC	39.95
DS22B	DPDT AB	BNC	54.95
*DS22BT	DPDT AB	BNC-TNC	56.45
DS13B	SP3T ABC	BNC	49.95
DS23B	DP3T ABC	BNC	67.95
*DS23BT	DP3T ABC	BNC-TNC	69.95

*For Wang Devices-Switches Transmit & Receive Cables Simultaneously

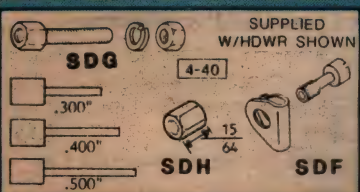
Qty Discounts & Custom Types Available

DELUXE GENDER CHANGERS



Model	Gender	1-9	10-24
MG9F	Female-Female	15.95	14.51
MG9M	Male-Male	15.95	14.51
MG15F	Female-Female	18.95	17.24
MG15M	Male-Male	18.95	17.24
MG25F	Female-Female	23.95	21.79
MG25M	Male-Male	23.95	21.79
MG37F	Female-Female	27.95	25.43
MG37M	Male-Male	27.95	25.43

Popular RS232 Lockdown Screws



MODEL	50-450	500-1200	1200-over
SDG300	.18	.17	.16
SDG400	.19	.18	.17
SDG500	.20	.19	.18
SDH	.11	.10	.09
SDF1(Chrome)	.19	.18	.17
SDF2(Tin Plate)	.19	.18	.17

NOTICE: Multiples of 50 Only

AC Line Transient Surge Protector



- Prevents False Triggering
- Absorbs Spike & Noise
- Safe Voltage Level
- 2-Step Protection
- Rated: 15A @ 125VAC
- Polarized Gnd'd Recept.

MODEL	# TAPS	1-4	5-9	10-24
SS-1	Single	10.95	9.86	8.76
SS-3	3-Way	12.65	11.38	10.12

TRANSFER SWITCH BOXES-Save Time

Data Transfer Switch Boxes are used to interconnect computers with compatible peripherals, allowing the connection to be made with a single flip of a switch. The need to disconnect and change cables to the next peripheral is virtually eliminated. Although only two transfers are shown, L-com has a variety of eight families to choose from.

RS-232 SERIAL
AB 2-Way
DU-2500
All 25 leads Switched

\$59.00

Centronics Parallel
AB 2-Way
DU-3600
All 36 leads Switched

\$79.00

■ Hi Impact Case, Virtually Unbreakable
■ Highest Quality Push Button Switches
■ Contacts are Sealed, Gold Plated

■ Mil Grade Fiberglass PC Board
■ Offering Best Quality/Price Ratio
■ Quantity Prices Available On Request

Handy Cable Testers-Avoids Aggravation

Here's the simple solution to resolve questionable Coax Cable problems. The L-com Coax Cable Testers are easy to use and convenient to carry. A Green Lite indicates all parameters are OK and a Red Lite warns of a defective cable. A must for any technician's tool box.

Model DX100
79.95

Model DX35
49.95

- Convenient Size with Handy Carry Case
- Test IBM Twinax Cables for Shorts, Continuity and Reverse Polarity
- One Push Switch - 3 Lites Tell All
- Remote Adapter (supplied) Allows Testing in Volts or on Location

- Sturdy Cast Metal Construction
- Test Any Coaxial Cable with BNC's for: Shorts or Opens
- Simple Push Sw - 2 Lites Tell All
- Self Contained 9V Batteries Provided

L-com Modular Telephone/Line Tester

Model DX30
8.95

OPERATING INSTRUCTIONS-SINGLE LINE TESTER			
OK	LOW REV.	LINE STATUS	DEFECTS
★	○	LOOP CURRENT	NORMAL
★	★	AND WIRING OK	TELE OFF HOOK
○	★	LOOP CURRENT LOW	SHORT OR GROUND
○	★	TIP & RING REVERSED	LINES REVERSED
○	○	NO LOOP CURRENT	OPEN, SHORT OR GND.

Modem & Station Protectors Advanced Circuit Design

The L-com Modem and Station Protectors are designed to guard sophisticated electronic equipment such as computers, modems, and terminals from lightning and other electronic disturbances. The devices shown below utilize a unique two stage circuit to provide a sophisticated blend of high speed voltage limiting in nano seconds, and brute force protection. Proper grounding is the most important factor and L-com has simplified this procedure by making use of the efficiently grounded AC outlets found in most offices and homes. The L-com Modem and Station Protectors recover automatically in preparation for the next surge.

DELUXE MODEM PROTECTOR

Two active lines are 100 % protected with Automatic Grounding by simply plugging into closest AC outlet.

- Response Time: 5 nano sec's
- Baud Rate: to 1 Mhz
- Connectors: Modular RJ 11

BNC STATION PROTECTOR

Take the worry out of long coaxial runs. Install on each end for maximum protection.

- Enclosure: Heavy Cast Metal
- Connectors: BNC's or TNC's
- Clamp: Above 6.8 volts
- Response: 5 nano sec's

TWINAX STATION PROTECTOR

Use with IBM System 34 and System 38 twinaxial installations. Grounding is simple. Use our unique GND LINE, no tools are required.

- Enclosure: Case 4.25" X 1.25" X 1.0"
- Connectors: two Twinax
- Clamp: Above 6.8 volts
- Response Time: 5 nano sec's

MODEL	1-9	10-24
LPM2	33.00	29.70

MODEL	1-9	10-24
LPBC-1 BNC	59.00	53.10
LPTC-1 TNC	59.00	53.10

MODEL	1-9	10-24
LPTX	88.00	79.20

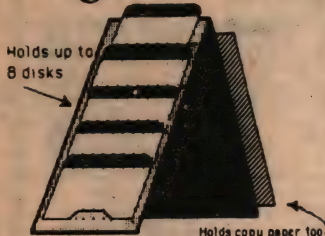
MINIMUM ORDER \$25.00 • ADD \$4.50 Shipping & Handling

TO ORDER or for TECHNICAL SUPPORT Call 617-682-6936

L-com

DATA PRODUCTS 1755 Osgood St., No. Andover, MA 01845

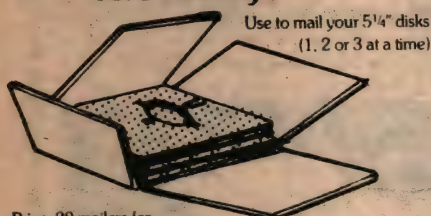
FREE BONUS OFFER!



With your order of \$59.00 or more you will receive a **FREE** Disk Easel/Copyholder.

New Disk Mailers

Safe Mailing!



Price: 20 mailers for \$12.95* * Plus \$3.00 shipping & handling.



The Problem:

As you may have discovered, floppy disks are kind of like rabbits... you start with two and before you know it, you have them everywhere! Then, your problem is to keep all those disks organized so you can find the ones you need — without mess, fuss or wasted time.

The Solution to the problem:

for you, can be the new Weber & Sons' Disk Organizing System... or, **WS/DOS**, for short. This is a system you use next to your computer. It includes: a disk file to hold about 150 disks, a color code system that's easy to remember (because it's like the color of a traffic light), disk labels, disk jackets (in colors) and clear plastic pockets you affix to your disk jackets to help you identify the contents of all your disks — fast.

In Short, It's a System

that is easy to use, fast to set up, efficient and reasonably priced. **WS/DOS** can be yours in a kit — so you'll have everything you need to organize your disks in one convenient package, or as just the items you may need to fill your immediate needs.

For more information or to place your order, call us today — **TOLL FREE at 1-800-225-0044**. (in N.J. call: 201-431-1128).

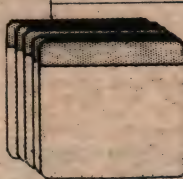
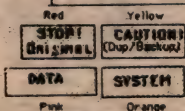
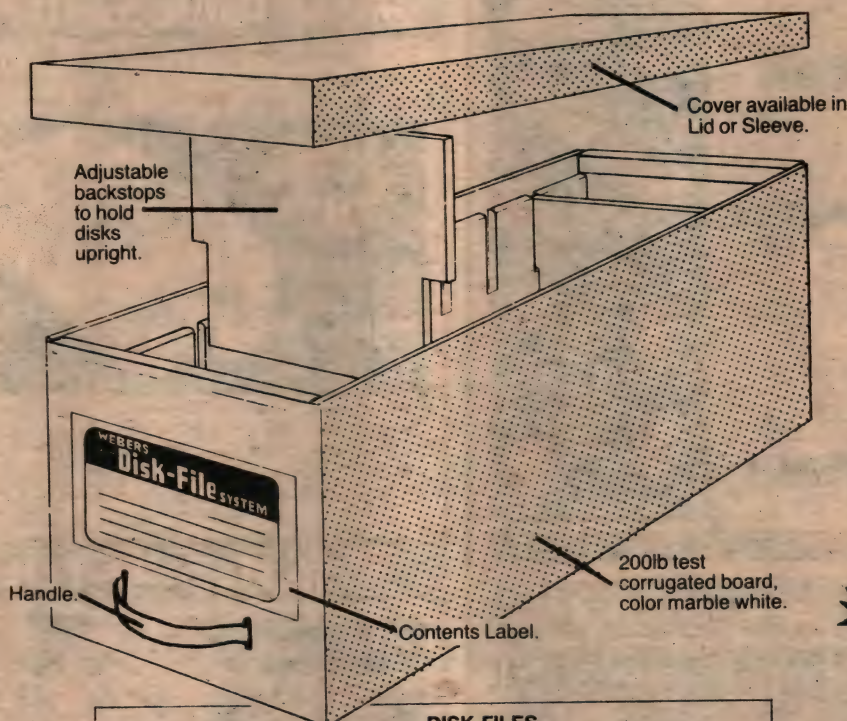
WS/DOS-DISK-KIT, Sr.

One size 5.25-D Disk-File (holds 150 5 1/4" disks), your choice of lid or pull-drawer sleeve, 100 KangarooPockettes with color coded inserts, 50 color code disk jackets, 120 large 1" x 3 1/2" color code disk labels, 120 small 3/8" x 1" color code disk labels, and one Disk Easel/Copyholder — holds eight disks for easy viewing or use it as a copyholder when typing. **All for only \$59.95**

GET DISK-ORGANIZED

WITH THE NEW WS/DOS DISK-ORGANIZER SYSTEM

The System that enables you to organize, and transport your vital data.



DISK FILES

Cat. #	Capacity	Outside Dimensions L W H	Price*
3.5D	90-100	14 1/4" x 5 9/4" x 4 3/4"	\$ 9.95
5.25-DS	75	8" x 7 1/4" x 6 1/4"	\$ 8.95
5.25-D	150	16" x 7 1/4" x 6 1/4"	\$10.95
8-D	150	16" x 10" x 9"	\$16.95

Note: Your choice of LID or SLEEVE sizes: 5.25-D & 8-D
Other sizes available, please call for information.
(Made of 200# Test Corrugated. Color: Marble White)

COLOR CODED DISK LABELS*

Cat. #	Size	Qty./Pkg	Price*
CCDL-138	3/8" x 1"	120	\$4.50
CCDL-14	1" x 3 1/2"	120	\$6.80

† Red, Yellow, Green, Orange, Pink

DISK JACKET (5 1/4")

Cat. #	White (Tyvek) Qty./Pkg.	Price*	Cat. #	Colors † Qty./Pkg.	Price*
DJW-5	25	\$ 6.80	DJCC-5	25	\$ 7.95
DJW-5	50	\$13.30	DJCC-5	50	\$13.95
DJW-5	75	\$19.60	DJCC-5	75	\$19.95
DJW-5	100	\$25.50	DJCC-5	100	\$26.95

† Red, Yellow, Green, Orange, Pink

* Plus Shipping and Handling Charges.

KangarooPockettes

Cat. #	With WHITE Inserts Qty./Pkg.	Price*	Cat. #	With COLOR† Inserts Qty./Pkg.	Price*
KPDJW	25	\$ 6.95	KPDJCC	25	\$ 7.95
KPDJW	50	\$11.95	KPDJCC	50	\$13.95
KPDJW	75	\$14.95	KPDJCC	75	\$17.95
KPDJW	100	\$17.95	KPDJCC	100	\$21.95

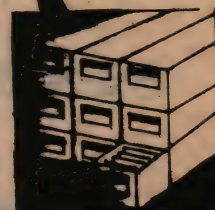
Note: Call or write for FREE SAMPLE. Refills available too.
† Red, Yellow, Green, Orange, Pink

SATISFACTION GUARANTEED



Portable Disk File with latch type lid \$3.00 extra.

NEW
Stackable Files



WS/DOS DISK-KIT, Jr.

One size 5.25 DS disk file (holds 75 5 1/4" disks), 25 KangarooPockettes with color coded inserts, 25 color coded disk jackets, 120 large 1" x 3 1/2" color code disk labels, 120 small 3/8" x 1" color code disk labels, and one handy Disk Easel/Copyholder — it holds eight disks for easy viewing or use it as a copyholder.

All for only \$39.95

MACINTOSH* Aids

• New Disk-File Kit #100:

Includes 1 3.5-D Disk File (holds 90 to 100 disks), 3 backstops, removable lid, 10 dividers, samples of color coded labels, StaticShield disk jacket & catalog of Weber's disk organizing aids **\$9.95***

(Made of 200# corr. bd. Color: White)

• New Disk-File Kit #200:

Same as #100 (above) PLUS: 120 color coded disk labels, 1 Disk Holder stand, 25 white disk labels. All for only **\$19.95***

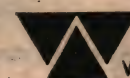
• New Disk-File Kit #300:

Same as #200 (above) PLUS: 100 White disk labels, 1 Disk/Easel/Copyholder. **\$29.95***

• New Disk-File Kit #400:

Same as #300 (above) PLUS: 25 StaticShield Disk Jackets with 25 pockets to affix to the jackets, 25 color coded and 25 white insert cards, All for only **\$49.95***

* Plus \$3.00 for shipping & handling.



weber and sons inc.

P.O.B. 1027 Adelphia, N.J. 07710

CALL TOLL FREE 1-800-225-0044; NJ: 201-431-1128

ORDER FORM ORDER FOR TRIAL TODAY! FOR EVEN FASTER SERVICE CALL (201) 431-1128 / 800-225-0044

MasterCard/VISA



ORDER FORM

MAIL TO: WEBER & SONS, INC., P.O.B. 1027 Adelphia, N.J. 07710
CALL: TOLL FREE 1-800-225-0044; NJ: 201-431-1128

PLEASE SEND THE FOLLOWING ITEMS	Quan.	Price	Total
1.			
2.			
3.			
4.			
ADD FOR SHIPPING & HANDLING			\$3.00
TOTAL ENCLOSED:			

SEND TO:

Name: _____

Company: _____

Street: _____

P.O. Box: _____

City/State/Zip: _____

☐ Mastercard ☐ Visa ☐ UPS/COD ☐ Check Enclosed

Credit Card #: _____

Expiration Date: _____

Phone # () _____

CHECK ONE:

☐ Include **FREE** Disk Easel/Copyholder.

☐ LID
☐ SLEEVE
☐ Latching Lid

TOLL FREE:
800-225-0044

EXTRA . . . EXTRA . . . EXTRA . . . EXTRA . . .

According to leading publications, the PC market is in the midst of a fullblown shakeout. IBM, KAYPRO, OSBORNE and most other PC manufacturers are initiating cutbacks and layoffs due to slumping sales. Their increasing advertising dollar brings less & less results. At the same time sales for the ZORBA portable computer, the computer that is only advertised in a few choice periodicals and relies heavily on satisfied user testimonials, are showing a steady increase.

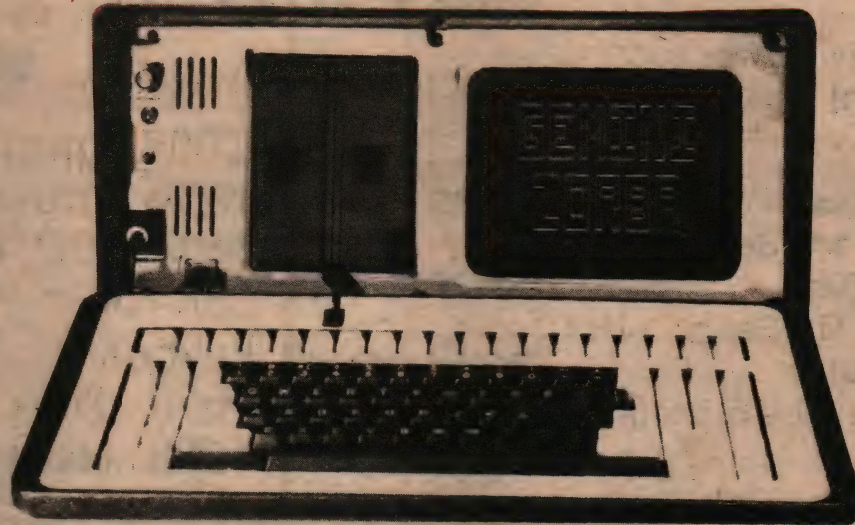
It's no secret, the public is learning what industrial users have known for years. That is: that for daily operation of word-processors, spreadsheets and databases, the trendy options are rarely used and the flashy machines that house them are really no faster, no more reliable and much more expensive.

**THE PUBLICS LEARNING WHY THE ZORBA IS STILL AND ALWAYS HAS BEEN
THE EXPERTS CHOICE.**

ZORBA PORTABLE COMPUTER

FEATURES:

- 9" GREEN OR AMBER CRT
- 19 INDEPENDENT, 55 PROGRAM-ABLE FUNCTION KEYS
- TWO 400K DSDD DRIVES
- 64K BYTES 150 NS RAM
- C BASIC COMPILER
- IEEE 488 BUS MASTER PORT
- 24.6 LBS
- CPM 2.2 OPERATING SYSTEM
- M80 (L80, LIB80, CREF80)
- SOURCE CODE OF THE BIOS PLUS UTILITIES
- DATA COMMUNICATIONS SETUP PACKAGE
- SERIAL & PARALLEL PRINTER PORT
- DATA COMMUNICATION PORT



BUNDLED WITH
WORDSTAR, MAIL MERG, SPELLSTAR,
DATA STAR, REPORTSTAR, CALCSTAR

OPTIONS:

- 16 BIT 256K RAM UPGRADE (8088 CPU) \$600.00
 - 800K DSQD 96TPI DRIVES \$150.00
 - COMPOSITE VIDEO OUTPUT \$100.00
 - SOFT VINYL CASE \$25.00
 - TUTOR KIT; \$15.00 (CPM, WORDSTAR, CALCSTAR)
 - SCHEMATIC SET \$10.00
 - 10MB HARD DISK DRIVE \$2149.00
- AVAILABLE JUNE 15th, 1985



\$849.00

W/O Bundle

DEALER INQUIRIES INVITED

\$1049.00

With Bundle

General Specifications

ZORBA is the lowest cost full featured portable computer. This light weight computer is ruggedly packaged in a convenient carrying case. The case surrounds a strong inner chassis which further protects the Z80A based computer with its two double sided double density disk 400K drives, large easy to read 9" display screen and well designed detachable keyboard.

ZORBA uses CP/M, the industry standard operating system, which means that a wide range of existing software is readily available to the user.

The ZORBA users manual covers operation of the unit, all supplied software and all interface and internal information. A system diskette is supplied with all system files and utilities. A second diskette contains the sources for all ZORBA software including BIOS, SETUP, FORMAT, and PATCH.

Keyboard

Keyboard communicates serially with CPU
Detachable with 2 foot coiled cord
95 keys in standard QWERTY format
13 Key Numeric pad
Independent Caps Lock and Shift Lock
55 Software programmable function keys
All keys auto-repeat after 1 second delay
All Standard cursor and terminal control keys

Disk System

Controller: WD1793
Drives: 5.25 Double Sided,
Double Density, 400K
48 TPI

Built-in disk interchange formats: Xerox 820 (SD, DD), Kaycomp (DD), DEC VT-180 (SD), Osborne (SD) and IBM-PC (eg. CPM/86) and Televideo 802 (Read/Write and Format compatibility) (Expandable to 82 Formats)

Specifications

General Mechanical and Electrical

Width -17.5 inches (44.45 cm)
Height - 9.0 inches (22.86 cm)
Depth -16.0 inches (40.64 cm)
Weight -24.6 pounds (11.1 Kg)
Power -80-130 VAC or 190-245 VAC
50/60 Hz
170 watts max

Display

Display Tube:
9" diagonal, Green or Amber
High resolution display circuitry
60 Hz refresh rate

Display Format:

25 lines x 80 columns
5x7 Character Font with full descenders
128 ASCII Characters
8x9 32 Characters Graphic Font
2K Memory Mapped Display Buffer

CPU Board

Z80A CPU running at 4 Mhz with no wait states
64K bytes of 150 ns RAM (58K after CP/M loaded)
16K bytes of EPROM (2732) can be switched in and out by software
12K available for user EPROMS
8275 CRT controller, DMA driven
1793 Floppy disk controller, SMC data separator
Bipolar proms configure 10 addresses
Fully structured interrupts prioritized by bipolar proms

Interfaces

- Full asynchronous RS232 port with modem control. Baud rates and data translation and protocol programmable
- Full asynchronous full duplex RS232 port with hardware handshake (for printers). Baud rates and protocol programmable. (Serial Printer Port)
- One 8 Bit parallel port with independent strobe and ready lines. Supports Centronics interface with an available adaptor cable.
- IEEE 488 Bus Master Port (ie: General Purpose Instrumentation Bus) not Software Supported.
- 21 Standard Software Programmable Baud Rates: 45.5 to 19,200 BPS



**GEMINI
ELECTRONICS, INC.**

130 Baywood Avenue, Longwood, Florida 32750
305-830-8886 800-327-7182

Factory Direct to You— Buy Direct from Factory Reps

IBM PC/AT COMPATIBLE

#AT 2100—Basic Unit

(640K mother board, 192w power supply,
1.2 MB FDD, Floppy/Hard Disk Controller,
Low Profile Key Board)

ea/qty 3 ea/qty 1
\$2195 \$2495

#AT2100—20 MB Hard Disk

(Basic unit + 85 MS 20 MB Seagate HDD)

\$2595 \$2895

#AT2100—20 MB Hard Disk

(Basic unit + 40 MS 20 MB Seagate HDD)

\$2995 \$3495

#AT2100—40 MB Hard Disk

(Basic unit + 85 MS 2 × 20 MB Seagate
HDD)

\$2995 \$3495

IBM PC/XT COMPATIBLE

#XT2100

ea/qty 3 ea/qty 1
\$995 \$1295

(256K mother board,
135w power supply
360K FDD, Floppy Disk
controller, low profile
keyboard, color card,
Hard Disk controller,
10MB Hard Disk.)

IBM PC/AT COMPATIBLE KITS

1. Metal Case \$129

(Specification and size identical to IBM PC/AT case)

2. 192w Power Supply \$150

(Specification and function same as IBM PC/AT. Power Supply meets FCC/UL spec.)

3. Keyboard \$109

(Low profile, compatible with keytronics 5060)

4. Multifunction Card, OK \$235

(With 1 serial, 1 parallel, expandable to 2 mega RAM)

5. Parallel/Serial Adaptor \$149

(Using fast chip NS16450)

IBM PC/XT COMPATIBLE KITS

1. Mother Board \$180

w/ 256K socket, OK

2. Color Graphic Card \$95

(320 × 200 graphic code)

3. Monographic Card \$125

(720 × 348 w/ printer port)

4. Printer Card \$27

5. Teac 55B 360K \$85

6. Metal Case \$49

7. 135w Power Supply \$89

w/ DC Fan, 110v/220v switchable

8. Keyboard \$70

(Low profile keytronics 5150 compatible)

9. Floppy Disk Drive Controller \$55

w/ cable

10. 9 PC 4164 150NS \$8

DRAM

10 MB Hard Disk w/ Controller \$395

20 MB Hard Disk w/ Controller \$495

10 MB Hard Disk Bare Drive \$299

20 MB Hard Disk Bare Drive \$390

G&L

TOLL FREE FOR ORDER (800) 523-8750

TELEPHONE: (714) 758-8600

230 N. CRESCENT WAY, SUITE D • ANAHEIM, CA 92801

TEXAS INSTRUMENTS

Randy's Ravings

by Randy Holcomb

This month we will take a look at the usual letters and new products for the TI community.

16/32 Memory Card
Top Radio Supply
17885 Mt. Elliott
Detroit, MI 48212
Phone: (313) 366-9088
Kit: \$75.00 + \$3.00 SH
Assembled: \$125.00
(Includes return postage)

OK, I'll admit right from the start that I have a bias on this product as I helped design it (with the help of Steve Boro-wiak from Top Radio Supply).

This product came to light from a conversation that was held a long time ago by myself, Steve and Andy Cooper (the P-system wizard of the TI Community). Andy made the realization while playing with a bus analyzer on a TI system that if you do certain things to the control lines the processor runs at the full bus speed of 3MHz (which is the speed that the system ROM and the scratch-pad RAM get accessed at). Steve and I got to thinking that if someone could put expansion memory inside the console across the 16-bit bus assembly language performance of the 99/4A could be dramatically improved. The result is the 16/32 memory card which does place the 32K of memory across the 16-bit bus and does improve performance. You may have noticed that I said "assembly language performance" versus Basic/Extended Basic: Both Basic and Extended Basic are under the control of GPL and as such are slow (though assembly language routines called from these environments should run faster with the 16/32 Memory Card installed).

How much faster do programs run with the 16/32 installed? Examine table 1 for some examples of the performance increase under the products listed.

Right about now you're probably asking "How compatible is this product? 70%? 80%? 100%? What hardware or software won't work with this card?" The answers are as follows: The card is 32K of memory that sits inside your console across the 16-bit bus,

giving you increased speed and performance. If the code that you are running has software timing loops that are at all critical there is the likelihood that the code may not run properly, which is to be expected. So far, I myself have not run across a piece of legitimate software that has NOT worked with the 16/32 memory card. (I did try a "cracked" version of Atarisoft's Dig Dug but it died as it put up the playing field, and no, I do NOT have that "cracked" version of code in my library, thank you.)

If you have any of the 128K cards there is a little surprise waiting for you: with the 16/32 card installed it will NOT recognize it as the control line is not brought out. As a matter of fact you can have a 32K card in your PBox and a 16/32 in your console and it will ignore the 32K card as well. Should you desire to have the old 32K card available, Top Radio Supply will tell you how to install a switch to do this so your 128K investment isn't thrown out the window.

I recommend the installed version unless you have access to a vacuum desoldering station or are willing to spend several hours using solder-wick attempting to desolder the TMS 9900 processor from the console's motherboard. (I managed to wipe out one of my spare consoles attempting to desolder the 9900 from the motherboard.) Also, the kit comes with only a 30-day warranty; and if you somehow manage to mung (modify until no good) your console during installation Top Radio will charge \$50 to rectify the situation. The assembled version (where you send in the console) carries a 1-year warranty and in addition to the warranty the power supply is modified to reduce heat dissipation and to handle the increased current load required by the 16/32. Fortunately the 16/32 uses CMOS 6264 8Kx8 SRAM's so it doesn't draw that much power.

I have been running my own system with a 16/32 Memory card for over three months now and I can honestly say that it WORKS. I have also noticed that my system doesn't crash as much as it used to. As a matter of fact during the benchmark test of assembling Fast-Term the stock system

configuration would lock-up right after it displayed the "0000 ERRORS" message, while the 16/32 went to a clean end. Even if I didn't have a hand in this, I'd still buy it!

drives to your TI! Just make sure that they are 40-track floppies and you meet the proper power requirements and set your drive addressing set up properly.

Function	16/32 Memory	Regular 32K
TI-Writer:		
Load of 85 Sector file	33.6 secs.	48.6 secs.
With word-wrap off: RS /to/TO/	7.5 secs.	11.4 secs.
delete 250 lines	1 min 14 secs.	1 min 59 secs.
Multiplan:		
Sort 51 items in spreadsheet (14 chars long)	27.3 secs	39.3 secs.
Editor/Assembler		
Assemble Fast-Term	10 mins 48 secs.	12 mins 17 secs.

Table 1 - Timing comparisons of 16/32 memory card

Letters

I am still amazed at the fact that the number of letters I receive from people who are just getting their feet wet with their systems and are looking for information as to what kinds of devices they can hook up to their systems. Ken Allen of Oxnard, CA wonders if he can hook up IBM-compatible drives to his TI. Of course you can hook-up IBM-compatible

A surprise was waiting for me in the September issue of *BYTE* magazine when yours truly was mentioned as a source of TI information, since the appearance of that tid-bit the *Computer Shopper* office got hit with lots of mail from people who were looking for TI info-to those folks I'd like to say WELCOME to the *Computer Shopper* and this column!

New Software

Asgard Software (P.O. Box 10306, Rockville, MD 20850) has released "Disk Data Base," a program for TI 99/4A computers that keeps track of the files on all of your disks. Asgard quotes 12,000 files can be in-

Continued on page 135

Universal Mac Inker: Automatic Computer Printer Ribbon Re-Inker

Computer Friends announces the brand new universal cartridge ribbon re-inker. Now, one Mac Inker model re-inks just about any fabric ribbon cartridge available currently or in the future.

Operation is extremely simple and wholly automatic. New formula, lubricated, carbonless ink yields a printout darker than many original ribbons and a re-inked ribbon lasts longer than the average original ribbon (before another re-inking is necessary). A good quality ribbon can be re-inked up to 80-100 times, depending on its original length.

Mac Inker can also be used to ink (and then re-ink) blank cartridges in any of six brilliant colors (or combinations thereof): red, blue, green, brown, yellow, purple - using the new Computer Friends ink.



Cost is \$60.00 for the universal base and \$8.50 for each cartridge driver kit.

The new universal cartridge Mac Inker is the second generation of the original Mac Inker. There are over 40,000 first generation Mac Inker(s) in operation worldwide.

New US patent pending.

For more information contact Computer Friends, 6415 SW Canyon Ct., Suite 10, Portland OR 97225. Telephone (503) 297-2321 / (800) 547-3303.

Mention that you read about it in the *Computer Shopper*. ●

Fast! SYSTEM 286

33% Faster than IBM's Powerful PC AT

THE ALR SYSTEM 286

The ALR System 286 is based on the advanced 80286-8 16 bit microprocessor with a system clock rate of 8MHz. This performance results in running most IBM® PC or XT software up to 350% faster. In seconds you'll be able to recalculate large spreadsheets and instantly load files.

Compatibility by Design. At Advanced Logic Research, the System 286 was designed to be 100% IBM PC AT bus compatible with full attention paid to the BIOS ROMs resulting in total support of IBM DOS 3.0, 3.1 and Xenix™ operating systems.

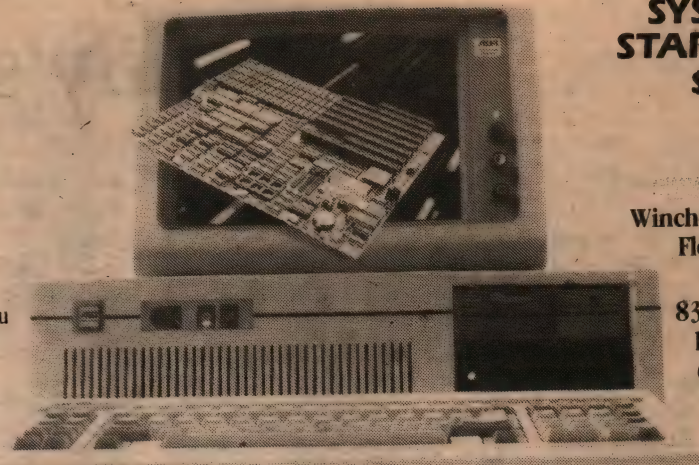
2MEGA BYTE USER MEMORY

The System 286 CPU Board can be expanded to a full 2 megabytes of parity checked user memory. This saves you valuable expansion slots and reduces your total system cost. With the addition of the award winning ALR Challenger you will be able to expand your total system memory to an incredible 15 megabytes.

THE ALR FAST/286 is a 100% IBM® PC AT bus and form compatible CPU motherboard for OEMs and system integrators

**SYSTEM 286
STARTING AT
\$2,495.00**

8 MHz CPU,
512K RAM,
Parallel Port,
Winchester Controller,
Floppy Controller,
1.2 MB Floppy,
83 Key Keyboard,
Battery Backup
Clock Calendar



DEFINING THE IDEAL PC

com • plete/kəm-plet/1: having all necessary parts, elements or steps 2: leaving little need for add-ons 3: having 20 megabytes storage and 640k of memory 4: including Clock calendar, printer and serial ports 5: an enhanced keyboard with separate

numeric and cursor controls as standard equipment.

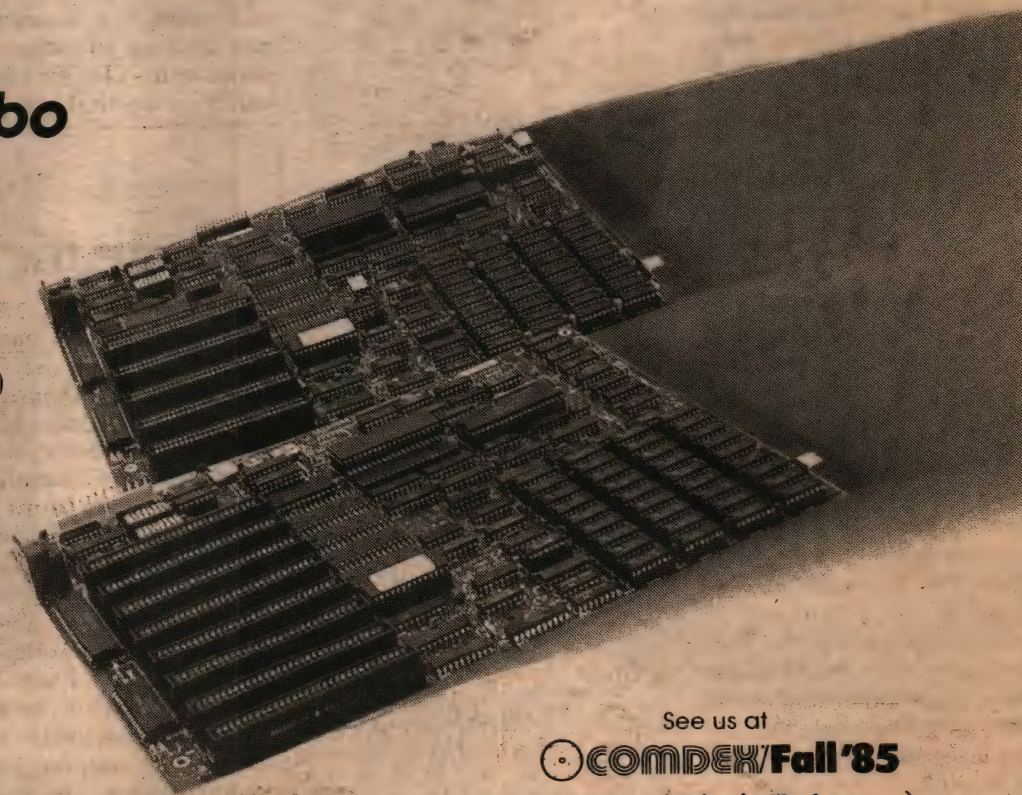
com • pet • i • tive/kəm-pet-ət-iv/ 1: inclined, able, or suited to compete 2: competing at 60% faster with 8 MHz/4.7 MHz

con • clu • sion/kan-klu-zhan/1: to reach as a logically necessary end by reasoning 2: ideal PC. ALR Advance PC turbo at \$1,995 a compatible, competitive, complete system plus the confidence of the ALR guarantee.

Advanced PC Turbo Advanced XT Turbo

- | | |
|---|--|
| <input type="checkbox"/> User Memory
64K-1MB on board | <input type="checkbox"/> Expansion Slots
5 at 1" center (Advanced PC Turbo)
8 at .8" center (Advanced XT Turbo) |
| <input type="checkbox"/> Microprocessor
Intel 8088-2
8 Mhz operation
8087 optional | <input type="checkbox"/> PCB
Multi-layer Epoxy
8½" x 12" IBM Mounting Holes |
| <input type="checkbox"/> I/O Ports
Parallel Printer Port (Advanced PC Turbo Only)
RS232 Serial Port (Advanced PC Turbo Only)
Speaker Port | |

For more information on a dealer near you, contact ALR and let's talk about your FAST! System 286.



See us at

COMDEX/Fall '85

Booth 3474 (Weltec)
Las Vegas, Nevada

XENIX™ is a registered trademark of Microsoft Corporation
IBM® is a registered trademark of IBM Corporation

ALR

ADVANCED LOGIC RESEARCH, INC.
2991 E. WHITE STAR AVE.
ANAHEIM, CA 92806
(714) 666-2951

CP/M

Building A Surplus Xerox 820-1 Computer System

by Gene Toner

How This All Got Started

I was paging through the latest issue of the *Computer Shopper* during my lunch break when the display ad by an outfit in Texas caught my eye. I'm a senior electrical engineer at Kulicke and Soffa Industries. We build the machines that assemble the integrated circuits that this story is all about.

"Hey, Clark!" I called out to Bob Clark, a technician that works in my engineering group and known to be a computer hacker, like me. "Look at this. 'Fully assembled and tested Xerox 820-1 single board computers for seventy-nine bucks.' Wow!" I exclaimed. Bob looked kind of puzzled at my excitement and came over and checked out the ads.

"Look at all this for seventy-nine bucks!" said Bob. "Z-80, 64k RAM, serial port, parallel port, disk controller, and you don't need a terminal to run the thing! Why are these things for sale so cheap? What kind of software do they run? Do you think this place gives quantity discounts?" Bob likes to make leaps of logic.

The answer to these and other burning questions lies in the early history of single board computers from which the Xerox 820-1 evolved. I'm familiar with this history because back in the dawn of hackerdom when everyone else was trying to make their S-100 systems work with the then-new CP/M, I bought a kit from another company in Texas (Digital Research Computers). This kit was the now famous Big Board, and I had my start in CP/M computers. The Big Board, designed by an engineer named J.B. Ferguson, probably had as much influence on the development of the personal computer, as we know it today, as any other single product ever introduced. This influence was due not only to the Big Board itself, but to the success and failure of its direct descendants, the Xerox 820-1 and the Kaypro line of personal computers. The salient feature of the Big Board that gained it its particular niche in the development of the personal computer was the use of Low Power Schottky TTL logic

gates. The reduction in power consumption afforded by the use of these devices enabled all of the components needed for a complete computing system to be included on a single circuit board of a reasonable size.

The previous approach used a bussed structure to spread the power dissipation over numerous circuit boards. While this allowed the power dissipation to be easily managed and afforded great flexibility in selection of what components could be included in a given computing system, a great deal of expense was contained in the card cage, mother board, huge power supplies, and large enclosures necessary to accommodate this scheme. The Big Board did not need all of this expensive support, clearly pointing the way for the next generation of personal computing machines.

Xerox thought personal/office computers were a good idea and wanted to get into the business as quickly as possible. They identified the Big Board as the fastest way into this business and negotiated with Mr. Ferguson for rights to manufacture the Big Board. What came out of this was a single board computer with a different physical layout than the Big Board, but with substantially the same components, features, and flaws. The glaring error in the Xerox 820-1 was the use of a disk controller capable of only single density data recording. This feature was a direct carryover from the Big Board, which was designed before reliable double density disk controller chips were economically available. This was not the case when the 820-1 was designed and became the undoing of a potentially good product. The 820 could run both 5-1/4 inch or 8 inch floppy disk drives in a single density, single sided mode. This limited the storage capacity on a 5-1/4 inch disk to 81k bytes and 251k bytes on an 8 inch drive. This storage limitation on a 5-1/4 inch drive made their use very limiting in a CP/M environment. To this fact we owe the availability of seventy-nine buck Xerox 820-1 boards on the surplus market. I have heard figures of 10,000 fully stuffed boards on the surplus market.

I explained to Bob that the Xerox board would run any software that would run in a CP/M environment and that, yes, he could run Pascal to help his wife in the evening computer course she was attending. Thus, having domestic tranquility assured for bringing even more electronic hardware home, Bob decided to start a small users group of Xerox owners in our company. After rounding up five courageous (gullible?) individuals, including myself, Bob called up the outfit in Texas, and lo and behold, for a quantity order of five, they knocked ten bucks off the \$79.00 price. We were irrevocably in the Xerox 820 business. My only problem was I had boasted that, with today's 80 track, double-sided 5-1/4 disk drives, the lowly Xerox could get about 350k bytes of storage on a diskette without making any hardware modifications. So, now I was stuck with the task of writing a new BIOS for the Xerox CP/M to support these newer drives. I figured I could fit this task into my busy schedule between 2 a.m. and 3 a.m., right after I finished the other three projects I was working on at the time.

Trials and Tribulations

We had the boards shipped to my house, and my Doberman greeted the UPS man in his usual businesslike fashion. It's my sincere hope that they never meet socially. I popped open the shipment and found the five Xerox boards in good condition, but with no documentation. A call to Texas confirmed my worst suspicions: none were shipped because they didn't have any, and "why don't you try calling Xerox?" I brought the boards into work and conveyed the bad news. Bob tried calling Xerox and was vectored to a lady who didn't know anything about the computer, but would gladly come out and service our copier. All was not lost, however, because later she got back to us with a number to call in Texas that was the Xerox surplus center, and maybe they could help us. At one time I owned a TRS-80 Model I that was built in Fort Worth. I was beginning to think the world revolved

around Texas, and my phone bill was confirming this suspicion.

I called the surplus center and found a well informed, if not technically knowledgeable, person who told me that there was no software or documentation available, but some great hardware deals were. Disk drive cables? Power connectors for \$1.50? Power supplies to plug right into 820? I made another date for the UPS man and my Doberman, but was still up in the air for documentation. I had hoped to buy, also, the 5-1/4 inch Xerox operating system disk (including CP/M), but had struck out. This surplus computer building wasn't as easy as it looked.

About this time a friend asked me for a recommendation for a good CP/M computer at a reasonable price. I showed him an ad in the *Computer Shopper* selling Sanyo 1100 systems for a very attractive price, and he decided to buy. Since he trusted my judgement (the fool), he asked me to order the system. Luckily, the Sanyo outfit wasn't in Texas. I called, and ordered the system, and was told that if I wanted a second disk drive, I would have to install it myself; was this a problem? I explained, no, that I was currently working on building a surplus Xerox 820 system and was installing a disk drive was no sweat. It turned out that the fellow on the other end of the line was doing the same. I asked about documentation. "Sure," he said, "you can get it from a place in Texas called Ferguson Engineering." And he gave me the number. J.B. Ferguson was still supporting his baby (probably the other way around), and I dialed the familiar area code once again.

Talked to the man himself and ordered the necessary documentation, schematics, users manual, and a disk with the original CP/M bios, and Xerox monitor source code. This cost as much as the Xerox 820 board (\$70.00), but we split the expense five ways, which made it far less painful. Group efforts are great for this kind of thing, plus you get four other impatient individuals on your case when you can't find documentation for the project

you told them to buy.

Shortly after this, the local Xerox lady sent us the same users manual we had purchased from Ferguson, but the rest of the documentation was invaluable to the project.

Hardware

The Xerox single board computer consists of a Z-80 running at 2.5 MHZ, 64k of 4116 dynamic RAM, a Z-80 SIO implemented as a serial printer port and a communications port, a Z-80 PIO for general purpose use, a Z-80 CTC for system timing and real time clock use, a second PIO used to interface to an ASCII encoded keyboard and to provide disk controller functions, a WD 1771 single density disk controller, and a TTL video display generator producing an 80 column by 24 line display. Also mapped in with the video memory are two 2716 EPROMS which hold the Xerox monitor code. The keyboard interface and video display generator allow the Xerox to operate without the necessity of a terminal; a very inexpensive system with real computing power can be constructed because of this.

All of these wonderful features do not come without some pain on the part of the constructors. First, a power supply is necessary to power the board and must supply three regulated voltages, +5, +12, and -12. A quality power supply is highly recommended since a marginal unit here can cause some very unusual, very hard to find errors in the systems operation. There are some very good deals in the *Computer Shopper* on switching supplies, and a candidate supply should be capable of delivering at least 3 amps at 5 volts and 1 amp at both +12 and -12 volts. My board draws a steady 1.80 amps on the 5 volt supply and 3 amp supply will provide a nice cushion for supplying transients.

Another problem area which will be encountered by the builder will be the fact that Xerox designed the board to produce "separate sync" video. Most monochromatic monitors available today that a hacker

Continued on page 74

Interactive Disassembler For Hitachi HD64180 Super Chip

Echelon, Inc. announces further support for Hitachi's HD64180 high-integration 8-bit microprocessor chip with release of upgraded REVerse-ASsembler program, Version 4. (Relocating macro assembler, ZAS, and debugger and monitor, ZDM, were previously released.) Considered a universal disassembler, REVAS4 handles Zilog, Intel, Xitan, and Hitachi mnemonic sets. Overlay module techniques permit 8080, 8085, Z80, HD64180 operation code and operand conventions to be disassembled (object code

translated to Assembly Language source code).

REVAS4 interactively helps to: 1) analyze software for modifications, 2) disassemble object files as large as 64k-bytes, 3) assign real labels in the disassembly, 4) insert comments in the disassembly, and 5) generate a cross-reference listing.

Easy-to-read instruction manual shows how the extensive REVAS command set gives instant control over input and output (I/O) to files, printer, and console; how to do a dis-

assembly; and even how the disassembler works! Additional interactive features include online help, choice of assembler mnemonics, control of data interpretation, and calculation in any number base. Echelon claims REVAS is best disassembler ever written for use with 8-bit microcomputers.

REVAS4 sells for \$90.00, quantity one, is immediately available in a variety of disk formats, and comes with 80-page loose-leaf manual. Program works with CP/M, MP/M and Z-System and runs on Z80, NSC800 and HD64180-

based microcomputers.

For OEM's and VAR's, REVAS4 is offered under economical, multi-year, volume-buying arrangements.

Echelon produces the high-performance 8-bit operating system called Z-System (combined ZCPR3 and ZRDOS), which is fully upward compatible with CP/M-80. Application programs are available that take advantage of unique capabilities of this extensive operating system, e.g., an advanced file and disk catalog program (DISCAT), a pri-

vate/public message handling system (Z-MSG), and a new generation communications and local area network package (TERM3). Also, Echelon offers Assembly Language libraries (SYSLIB, Z3LIB, and VL IB) with over 400 commonly needed subroutines for fast program writing.

For more information, write or call Echelon, Inc., 101 First Street, Los Altos, CA 94022, (415) 948-3820.

Mention that you read about it in the *Computer Shopper*. •

Surplus Xerox Continued from page 73

would find interesting require a composite video signal, and the Xerox board does not produce this type of signal. A composite video adapter can be made from a few inexpensive parts as shown in the schematic in the manual. Note that four components on the Xerox board must also be changed to produce the proper timing on the horizontal sync pulse for composite video. A plug-in

video adapter is available from Ferguson Engineering for \$25.00 if constructing this circuit is not in your plans. I cannot speak for the performance of the Ferguson adapter, because no one in our group moved in this direction.

Aside from these thoughts, the hardware considerations will be confined mostly to making up the necessary cables for the video, keyboard, disk drives, and printer. I can highly recommend the disk drive cables I bought from the Xerox Surplus Center, because

these units are *first class*, and are made specifically for the application with all the proper connectors for a two drive system. These drive cables are probably the best surplus buy I ever encountered. The Xerox brings all of its I/O out to a panel attached to the board using "D" subminiature connectors with the exception of the PIO, which has a pin header on the board itself and will mate to a ribbon cable. These "D" subminiature connectors are useful in that they can be hand wired for any particular application and are easily obtainable. This basic hardware interfacing took little time other than for the development of the video adapter circuit and selection of the replacement

timing components. The keyboard you select should have positive logic 8 bit ASCII encoded output with a negative going data strobe and should be powered by 5 volts only, since this is provided on the Xerox keyboard connector.

Software

Obtaining software, on the other hand, was not done nearly as straightforward as was obtaining the hardware portion of the project. First, none of the members of the group had a copy of CP/M that they weren't using on another computer; Digital Research licenses CP/M for a single user for a single application. Second, we couldn't find a 5-1/4 inch disk formatted for a Xerox 820-1

with which to get started.

I contacted Digital Research, Inc. (no, they are not in Texas) and inquired if it were possible to purchase an unconfigured single copy of CP/M. The answer was no, and the minimum arrangement available was a copy license for fifty copies at a cost of \$75.00 each. This was out of the question for our purposes, and another alternative short of outright piracy had to be found to make the project a success. We checked the classified ads in the back of the *Computer Shopper* and found an ad selling CP/M configured for the Xerox at a single copy

Continued on page 171

Software Product Announcement

Product: Football -- An Exciting Fast Action Game.

Generic Computer Products, Inc. is proud to announce the availability of a new software product called Football.

Football is a fast-action one or two-player game in which players play offense against the computer-controlled defense. Football is just like the real thing in that you can run the ball, pass the ball, punt or even try for a field goal. And while you are playing, the fans may even cheer for you.

Football plays four quarters and uses a timer to keep track of how much time is left in the current quarter. The scoreboard also displays the current ball position, down, yards-to-go for a first down, and the score. Football even presents an entertaining half-time show! Nine skill levels are available to provide an en-

joyable challenge for both the novice and experienced player.

Football requires 48K for HDOS, CP/M-80, and CP/M-85, 64K for PC-DOS and CP/M-86, and 128K for Z-DOS. Also required is an 80x24 terminal and direct cursor control. Football is available for \$24.95 and includes printed documentation, a 5" disk and software registration form.

Football may be purchased from most Computerland stores, Heathkit Electronics Centers, and other authorized retail software dealers or directly from Generic Computer Products, Inc., P.O. Box 790, Marquette, MI 49855 (906)249-9801. Please add \$3 for shipping/handling charges. Michigan residents please add 4% for sales tax. Payment in U.S. funds only! Please specify computer brand, operating system and disk format when ordering.

Mention that you read about it in the *Computer Shopper*. •

Spectravideo Announces Formation of National Customer Service Program

Spectravideo Inc. recently announced the formation of a national customer service program through Serviceland Computer Services Inc., of Westlake Village, California. Serviceland offers a variety of service options for a broad line of microcomputer products and peripherals.

Effective immediately, Serviceland will assume responsibility for warranty service of the Bondwell line of CP/M and MS-DOS based portable, transportable, and desktop computers. Included in the Bondwell coverage was a toll free 800 telephone number (800-225-7777) for technical support, free carry-in depot warranty service, and extended warranty service contract availability.

Spectravideo said recently that it will open depot lo-

cations in all parts of the country where it has product distribution established.

Initial locations include Santa Ana, California; Tarzana, California; Sunnyvale, California; Dallas, Texas; Northbrook, Illinois; and Melville, New York.

The Bondwell line of personal computers includes the CP/M based BW-2 lapsed portable computer and the BW-12, BW-14, and BW-16 series of transportables.

The company is scheduled to begin deliveries of its first MS-DOS based, IBM compatible desktop computers in September 1985. The Bondwell 34 will feature two DS/DD 5 1/4-inch floppy disk drives, 256K RAM, a unique three-function interface board and MS-DOS and GW Basic.

The Bondwell 36 will offer a built-in 10 megabyte hard disk drive as well as a DS/DD 5 1/4" floppy disk drive, 256K RAM, a unique three-function interface board and MS-DOS and GW Basic.

Headquartered in Fremont, California, Spectravideo Inc. manufactures and markets the Spectravideo line of home computer and Bondwell line of business computer systems, peripherals, and accessory products. The company is a majority holding of Bondwell Holding Ltd., of Hong Kong, a major OEM and branded consumer electronics manufacturers.

For more information contact Spectravideo, Inc., 3300 Seldon Court #10, Fremont, CA 94539, (415) 490-4300.

Mention that you read about it in the *Computer Shopper*. •

TIMEX-SINCLAIR

Timex-Sinclair Survival Column

by Mark L. Fendrick

One of the features included on the T/S 2068 which is very rarely, if ever, fully utilized is the ability to produce a wide range of sounds. These sounds can range from simple audio prompts through three part harmony. In fact, there are two different commands on the T/S 2068 to utilize the sound making capabilities. Of the two, the BEEP command is the easier to use, and therefore is the most common to find in a program.

The BEEP command utilizes only two arguments; one determines the pitch of the sound (high or low); the second controls the duration (length of time) of the sound. The pitch is represented by numbers in the range of -60 to 69. The longest note you can produce can be sustained for 10 seconds. Try this program to get some idea of how this command works:

```
10 PRINT AT 10.5;"PITCH VALUE: ";
20 FOR I = -60 TO 69
30 PRINT AT 10.18;" "
40 BEEP .5,I
50 NEXT I
```

The sound itself is produced in line 40, where ".5" represents the duration of the sound, and the "I" represents the (varying) pitch of the tone we are producing. Try altering the first argument to see how that affects the tone. As you can see, the very low tones, starting at the pitch represented by -69, are so low that they appear to be a series of slow pulses or clicks. It is not until about the mid -30's that a recognizable tone is produced. The pitch in the upper registers eventually go out of the range of many people's hearing. With this program you can see at what value the sounds occur so that you can use that information in your own programs.

You can use this information to add a sound after any written prompt you may have in your programs, or programs you may have bought and wish to improve. A good set of values to start with may be a duration of .5 and a pitch of 0 (which, for those of you who know some music, represents middle C). You may want to adjust these values for your own taste.

You may also use a tone to indicate an illegal choice. A

good selection of pitch would be in the lower range as indicated below:

```
10 PRINT #0;" PRESS "y" or "n"
20 LET q$=INKEY$: IF q$="n" THEN GO TO 20
30 IF q$="y" OR q$="n" THEN GO TO 200
40 BEEP .5,-35
50 GO TO 20
200 PRINT "Correct response"
210 IF INKEY<>" " THEN GO TO 210
220 GO TO 20
```

This can be used at a menu prompt or any time a decision is required. If an invalid response is attempted, a razz will be sounded, and the program will be sent back to await a proper entry.

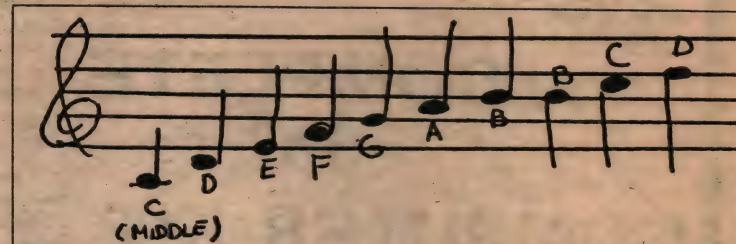
In addition to audible prompts, the BEEP command may be used to play music on your T/S 2068. Try this program:

```
1 FOR f=0 TO 7: READ a: POKE USR "a"+f,a: NEXT f
2 FOR f=0 TO 7: READ a: POKE USR "b"+f,a: NEXT f
5 BORDER 6: PAPER 6: CLS
10 FOR i=1 TO 26
20 PRINT AT 5,i; PAPER 2;" "
30 FOR j=6 TO 16 STEP 2
40 PRINT AT j,i; PAPER 7;" "
50 PRINT AT j+1,i; PAPER 2;" "
60 NEXT j
70 NEXT i
100 FOR i=1 TO 13
110 FOR j=5 TO 10
120 PRINT AT j,i; PAPER 1;" "
130 NEXT j
140 NEXT i
200 FOR j=6 TO 9
210 FOR i=2 TO 10 STEP 2
220 PRINT AT j,i; PAPER 1; INK 7;"#""
230 NEXT i
240 PRINT AT j,i; PAPER 1; INK 7;"#""
250 NEXT j
260 PRINT AT 10,2; PAPER 1; INK 7;"# # # # #""
270 FOR f=1 TO 12: READ a,j: BEEP a/2,i: NEXT f
280 STOP
1000 DATA 60,60,60,60,0,0,0,0
1010 DATA 0,0,0,0,60,60,60,60
1020 DATA 1,1,7,5,4,1,0,1,4,1,7,2,12,1,16,5,14,1,12,1,4,1,6,2,7
NOTE: # = GRAPHIC A
      * = GRAPHIC B
```

As you can see, this program creates a picture and then plays an appropriate tune. (No I am not going to tell you what the graphic is or which tune is played. You will have to type this in to find out.) Lines 1 and 2 create user defined graphics which are used by using the GRAPHIC A and GRAPHIC B. (Press CAPS SHIFT/9 to get into or out of GRAPHICS mode.) The DATA statement at line 1000 defines the GRAPHIC A character, while the DATA statement in line 1010 is used for the GRAPHIC B definition. The tune is generated by the single line at 270. As you can see it is a simple loop which READS the DATA at line 1020. This DATA statement contains the sets of duration values and pitch values which are READ in 270:2 and played in 270:3. Notice the BEEP statement in

this line. In this example the value for the tone's duration is divided by 2. Try varying this number and see how that affects the tune. We will discuss this in more detail soon. (How would you replay this tune without erasing or redrawing the picture? This next program contains a clue.)

```
1 BORDER 0: PAPER 0: INK 9: CLS
2 CIRCLE 125,90,3: CIRCLE 125,90,70: CIRCLE 143,107,3: CIRCLE 107,107,3
3 PLOT 125,70: DRAW 50,13: PLOT 125,70: DRAW 50,0: PLOT 125,70: DRAW 50,-13
4 PLOT 125,70: DRAW -50,13: PLOT 125,70: DRAW -50,0: PLOT 125,70: DRAW -50,-13
5 ON ERR GO TO 9000
10 READ a: READ b
15 BORDER INT (RND*8)
20 BEEP a/2,b
30 GO TO 10
1000 DATA 1.5,12,1.75,12,5,11,5,12,1,14,25,12,25,9
1010 DATA 1.5,12,2,12,5,11,5,12,5,14,75,12,25,7
1020 DATA 1.5,9,2,9,5,5,5,7,5,9,5,7,5,5,4,4
1030 DATA 1,4,5,7,1,5,7,1,2,5,4,65,5,65,7,65,9,65,11
1040 DATA 5,12,5,11,5,9,3,7,5,-60,5,4,5,0,4,7,5,-3,1,-3,5,-1,3,0
9000 ON ERR RESET
9005 INPUT "PRESS ENTER TO REPEAT":z$
9010 GO TO 5
```



You can use the values not mentioned here for the sharps and flats, which are the pitches between the values listed. A sharp (#) raises the note one half tone, therefore you would use the next higher number. On the other hand, a flat (b) lowers the tone one half step so you would use the next lower value.

The duration is determined by the shape of the note. For the most part you will be dealing with four or five different types:

Whole note	4 beats
Half note	2 beats
Quarter note	1 beat
Eighth note	1/2 beat
Sixteenth note	1/4 beat

○ - whole note
 d - half note
 ♩ - quarter note
 ♪ - eighth note
 ♫ - sixteenth note

which will ask if you want to repeat the song.

But how do you determine what values to use for both the pitch and the duration of each note? Dismissing trial and error as a method, you need to know just a little about reading music to accomplish this. The accompanying chart will show you the value of the two scales (in the key of C major for those of you who understand these things) centering on middle C — the centermost key on a standard 88 key piano.

C	-12
D	-10
E	-8
F	-7
G	-5
A	-3
B	-1
MIDDLE C	0
D	2
E	4
F	5
G	7
A	9
B	11
C	12

You will recognize this if you type in and run this program:

```
10 FOR f= 1 TO 15
20 READ a
30 BEEP .5,a
40 NEXT f
50 DATA -12,-10,-8,-7,-5,-3,-1,0,2,4,5,7,9,11,12
```

These values are based on the 4/4 (or COMMON) time musical notation, but the relationships will not vary, and you really do not have to be concerned about this. By assigning a value of 1 to a quarter note, you automatically assign a whole note the value of 4; a half note a value of 2; an eighth note the value of .5; and a sixteenth note the value of .25. As demonstrated in line 270 of the first program, and 20 in the second program, you can speed up or slow down the tempo (speed) of the piece by either dividing (to speed up) or multiplying (to slow down) this number. This is much easier than re-doing (and re-figuring) the values for each new tempo.

The T/S 2068 also has the ability to produce an even wider range of sounds and music by utilizing the SOUND command. With this command you can create sound effects, or music with three part harmony. This was part 1 of a series on sound on the Sinclair computers. The next installment will cover the use of the SOUND command.

Next month, with the holiday season upon us, we will have our second annual roundup of Sinclair related products, and listing of vendors still supporting the line. If you have a favorite product and/or vendor, please drop me a card in care of Computer Shopper. Until then...

MENDELSON ELECTRONICS INC.

IBM* Compatible

NEW!

COMPLETE PC

COMPUTER KIT

\$1064 64 K Kit w/Monochrome Monitor

Includes:

Motherboard with 64K expandable to 256K (Faraday FE6400)
Keyboard (Key Tronic 5150)
Disk Controller Card (Faraday)
2-Teac 55-B DSDD 360K 1/2 Height Disk Drives
Fan, Speaker, Serial & Parallel Harnesses
Runs All PC & MS-DOS For IBM PC* GW Basic, CP/M86, Qunix
(includes documentation)
Easy to assemble, No soldering necessary

Kits available with or without monitor.
With color monitor includes 14" RGB Color Monitor with Color Graphics Card.
With Monochrome includes 15" TTL amber, or green monitor with standard mono card.

64K Kit no monitor	835.00
64K Kit w/Color Monitor	1235.00
64K Kit w/Monochrome Monitor	1064.00
256K Kit no monitor	871.00
256K Kit w/Color Monitor	1271.00
256K Kit w/Monochrome Monitor	1100.00
640K Kit no monitor	1050.00
640K Kit w/Color Monitor	1450.00
640K Kit w/Monochrome Monitor	1279.00



15" Mono Chrome Monitor

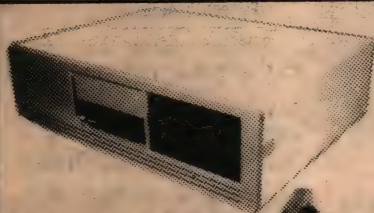
Separate Horizontal & Vertical Sync 110 VAC
30 MHZ Band Width
IBM* Compatible
(ADD \$50.00 FOR CABINET/SWIVEL BASE)
Shipping & Handling \$25.00

\$80 Ea. Amber
Ea. Green

14" RGB Color Monitor W/ Colorgraphics Board

Monitor is capable of Ultra High Resolution Graphics 25 MHZ Band Width
Swivel Base
IBM* Compatible
Shipping & Handling \$25.00

\$400 ea.



IBM Compatible Case/Power Supply

Metal Top and Bottom
Top (Powdered Paint-Virtually Indestructible) Bone
Chassis (Fully Punched - Ready To Go)
Front Panel
Blank Panels - Full Height or 1/2 Height (You Specify)
Feet
Input Power Connector
Off/On Switch
Power Harness
Model 9246 Power Supply With Shielded Cover
Shipping & Handling \$12.50

\$99 ea.

8" Winchester Hard Disks NEW!

Priam Model 3450-10
Capacity 35.3 MB (unformatted)
Transfer Rate: 806 KByte/Sec.
Average Seek 45 MSec
Max Seek: 85 MSec
Interface Priam Standard

\$495 ..

Memorex 101 OEM
Capacity 11.7 MB (unformatted)
Transfer Rate: 596.6 KByte/Sec.
Average Seek: 70 MSec.
SHUGART OEM
4000 Compatible

\$250 ..

Shipping & Insurance \$15.00

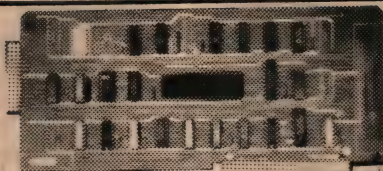
TEAC FD-55B



Double Sided
Double Density
1/2 Height
500KBytes Capacity
Low Power

Fully IBM* Plug Compatible
New, Fully Guaranteed
Beige Front Panel Only
Shipping & Handling \$3.50

\$89 ea.



PC Floppy Disk Controller (Faraday)

IBM PC plug and software compatible
Controls 1 to 4 Drives, Single or Double Sided
MODEL FE5140

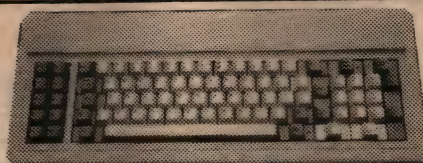
\$49 ea.

Disk Drive Controller Cable **\$6.00**

Dual Drive Cable Harness Kit

Includes new power and data cable for 2 Drive System

\$14.95 ea.



PC Keyboard (Key Tronic 5150)

IBM Plug Compatible
CAPS & NUMBERS LOCK LED
TILT LEGS
Shipping & Insurance \$6.50

\$79 ea.

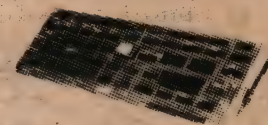
PC/XT Color Graphics Card (Intersil Systems)



Plug compatible IBM Color/Graphic Display Adaptor
16 Color
256 Alpha Numerics with Symbols, Graphics & Foreign Language
16 KB Video Ram/All Point Addressable Graphics
40 x 25
80 x 25
Med. Res - 320 x 200
High Res - 640 x 200
Light Pen Interface
Output Connector - Composite Video (RCA Jack) and 9 Pin D-Shell for RGB

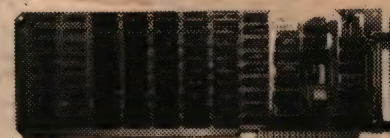
\$119 ea.

PC Monochrome Card (Intersil Systems)



Fully PC/XT Compatible
720 x 350 PEL
80 x 25
Hi Res Character Box 9 x 14
Blink, Underline, Reverse, Intensified, Block Graphics, Direct Drive Output (9 Pin-D Connector)

\$99 ea.



PC/XT Memory Boards

- 64K to 384K
-Fully PC/XT Compatible
-8 Bit Word Size w/Parity
-Single 5 Volt Supply
-Complete With 64K
-Fully Assembled and Tested
-All Lines are PC/XT I/O Slot Compatible
-High Speed RAM
-Fully Socketed

\$119 ea.

- 64 to 512K
-Same As #1

\$159 ea.

PC Motherboard Model 64 (Faraday)



IBM PC compatible
64 K onboard expandable to 256K Ram
DOS BIOS included on EPROM
FULLY TESTED AND BURNED IN
SIZE: 8 1/2" x 12" (same as IBM PC)

5 expansion Slots
1-Parallel Port (Centronix)
2-Serial Ports
Reset Port
Supports MS DOS, GWBASIC, CP/M 86, QUNIX
Shipping and Insurance \$6.50

\$400 ea.

Mendelson Electronic Co., Inc.

ORDERS SHIPPED WITHIN TWO DAYS

STORE HOURS 8:30 - 5:00 Monday thru Saturday

* IBM, PC/XT is a registered trademark of IBM Corp.

TERMS: MasterCard/Visa, Check or Money order (checks allow two weeks for clearance), and \$2.50 shipping/handling. C.O.D. add additional \$3.00. Ohio residents add 6% State Tax.

340 East First Street Dayton, Ohio 45402 513/461-3525



ROBOTICS

Probots And People An Overview

by Tim Knight

By now, you've probably heard of them at least once. You've seen them on television, shook hands with them at computer shows, and wondered if they were really here to stay or just a passing fad. They are the personal robots, or as I call them, *probots*, which appeared on the market only a few years ago and have only just started to receive some serious attention.

A personal robot is, in short, a computer on wheels with features that allow it to function in the "real world." You could build a personal robot by taking your computer, putting it on a motorized platform that could travel around with some accuracy, and adding a sensor or two, perhaps one to measure distance and another to detect motion.

Of course, there are many personal robots today which have those features and many more. There are robots that can talk, sing, flash their eyes, make sounds, detect light, detect sound, pour and deliver drinks, entertain guests, and guard the house. However, as a part of the personal robot industry myself, I'm sorry to say that for all of the press, claims, and fancy marketing, the personal robots of today can't do anything truly useful, this in itself is not bad, since truly practical personal robots are going to start appearing late this year. The real tragedy, I believe, is that the makers and sellers of personal robots have claimed that their robots could and would do a lot more than they're really capable of doing. Now that the damage is done, it seems that many personal robot manufacturers have burned their bridges by not being realistic about their product. For this reason, among others, I decided to write a column which would specialize in two things: (1) personal robots, and (2) the truth. You won't be told that the robots of today can vacuum your house and will soon be able to extinguish fires and cook your meals. I am going to tell you in very honest terms what home robots can really do, what they can be realistically expected to do in the near future, and how you can get involved in the field--and believe me, even the truth

is going to be awfully exciting.

Computers And Robots

There is a very close relationship between personal computers and personal robots. In fact, personal robots are essentially computers with add-on features. Therefore, robots can be designed two different ways: they can have a computer on-board and therefore be completely independent, or they can be hooked up in some way (infrared link, cable, or radio control) to a separate computer. The latter method makes for a less expensive robot, but it's somewhat restricting.

You are probably well aware of what a computer can do--receive and process information at a relatively high speed. There are quite a few accessories which interface directly with computers that can transform any computer into a robot. Here are a few of them:

- * A "rangefinder" sensor--this device can measure distances. Polaroid makes the most popular one, but you can build your own for a fraction of the cost. A rangefinder can help a robot determine if he's going toward or away from something, if he's going to run into an object, and so on. With each of these sensors and accessories, the uses are completely up to your imagination; for example, RB Corporation developed a software program that would let children put their hands in front of the RB and then guess how far away it was from the robot. The robot would then tell them the exact distance their hands actually were from the rangefinder. This doesn't exactly make for hours of fun, but creative ideas like this show you how flexible one add-on device can be.

- * A motorized platform--this causes a lot of problems for robot engineers, since they have to deal with carpets, slippery surfaces, navigation, getting the robot to move a decent speed, powering the motors, and so forth. However, it's obviously important that a robot be able to move around. There are different ways to make the robot mobile, such as having two wheels, each powered by an independent motor, steer

and power the robot, or having the robot "walk" with two or four legs--much more difficult but a lot more fun to watch.

- * Motion detector--this is a useful device if you want the robot to guard the home or say "hello" when someone walks in the room. It's up to you to design the software so the robot doesn't greet burglars and later welcome his master with a "Freeze! I am calling the police."

- * An arm--a robot must not only be able to operate in its environment but should also be able to manipulate it, at least in a small way. An arm gives the robot the power to pick things up, deliver objects, pour drinks, and perform other useful functions. Moreover, assisting the elderly and disabled becomes possible when you equip a robot with an arm or arms.

- * Light, sound, heat, and smoke detectors--extras like these simply expand the uses of a robot. The more features it has, the more flexible the robot becomes.

- * "Gee Whiz" add-ons--if you want the robot to look flashy, you can add a head that turns left and right, a humanoid-looking body, flashing eyes, a simple sound synthesizer, and other features which make the robot seem like what most people envision a robot to be. Those more serious about personal robots seem to shun gimmicky add-ons, but when you realize that Tomy has probably sold twenty times as many cute-looking Omnibots as Heath has sold boxy-looking Hero Jrs., you begin to see that looks mean a lot to the buying public.

A "Typical" Home Robot

Now that I mention the Hero Jr., I would like to go into it in some detail as a "typical" home robot. Hero Jr. is a \$1295 personal robot from the Heath Company of Benton Harbor, Michigan. They introduced the first commercially available personal robot, the Hero-1, in 1983 as a kit hobbyists could assemble. Hero-1 cost about the same as the Hero Jr., yet you had to spend about 80 hours assembling the robot, arm, and other components.

The Hero Jr. was intended

more for the consumer market since it was assembled and had plug-in ROM cartridges that could make the robot sing, play games, or guard the house. Unfortunately, as I suggested earlier, the Hero Jr. isn't the most handsomely designed robot in the world. In fact, many people suggest it looks like it hasn't been removed from its shipping carton yet. Despite its looks, it has a lot of interesting features, including an on-board computer, speech synthesis, motion, and the ability to detect light, sound, motion, and measure distance.

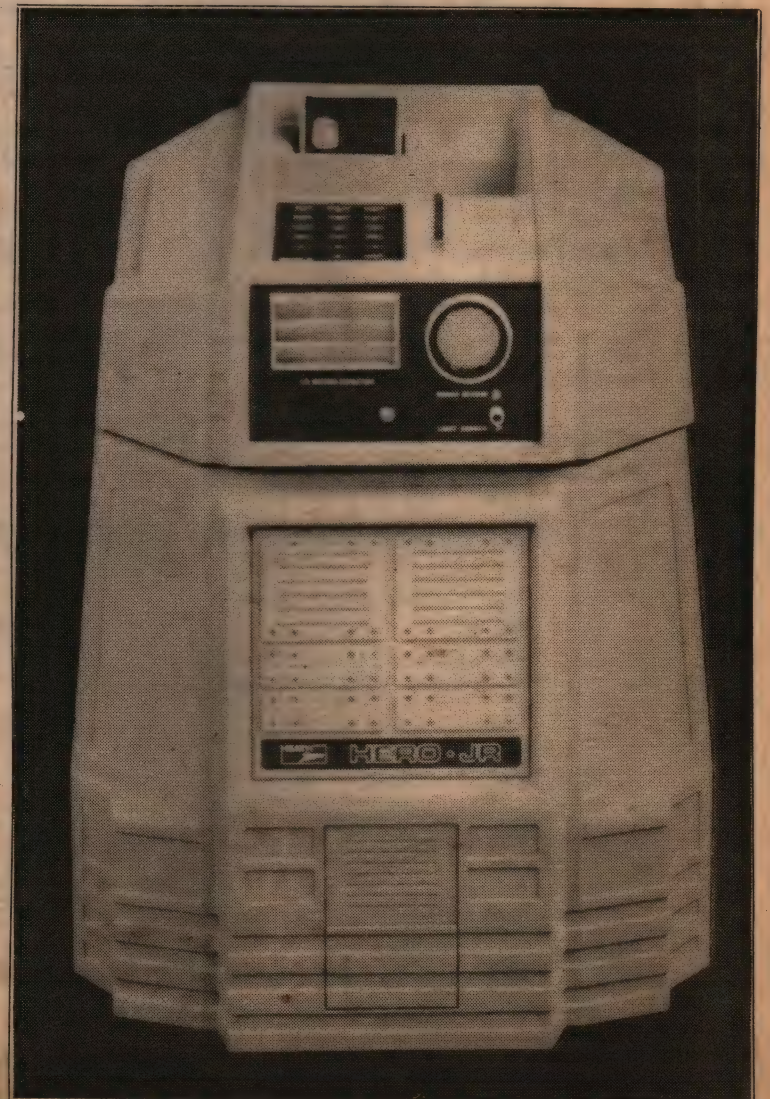
It's a fact that the sales of Hero Jr. have not been phenomenal. Hero-1 sold respectably well, reportedly at 8,000 units, but its little brother seems to be having a hard time. With all of those features, are looks alone holding back Hero Jr. from being a popular personal robot? No. The fact is that before people are going to spend over \$1000 of their hard-earned money on a very new technology, the inevitable

question is (you guessed it), "What can it do?"

Translated, this question means "what problems can this robot solve for me?" The answer, unfortunately, is: "not many." The only use for personal robots up to now has been to show them off as entertaining, amusing electronic devices which can move around and serve drinks and snacks at a party. There's nothing wrong with this, and the Tomy Corporation has done exceedingly well with this concept, but it certainly doesn't aim robots toward earth-shaking growth personal computers experienced ten years ago.

We will be looking at this phenomenon in columns to come. We will examine different products, possible users, and search for answers to such questions as, "How can I become involved in this field?" and "what kind of robot is fun and educational and will work

Continued on page 179





20 - 40% off

Call for pricing on all
available configurations.

Call for best prices on IBM & COMPAQ

AT&T PERSONAL COMPUTER

- 2-3 TIMES FASTER THAN IBM
- 7 AVAILABLE SLOTS
- BUILT-IN SERIAL AND PARALLEL PORTS
- BUILT-IN MONOCHROME/COLOR GRAPHICS
- IN STOCK FOR IMMEDIATE SHIPMENT

- 10 OR 20 Mb HARD DISK AVAILABLE
- DOS AND BASIC INCLUDED
- BUILT-IN CLOCK / CALENDAR
- WARRANTY SERVICE THROUGH US OR ANY AUTHORIZED SERVICE CENTER

OTHER AT&T AND IBM COMPATIBLE PRODUCTS

DISK DRIVES

- | | |
|--|-------|
| • 10 Mb INTERNAL HARD DISK W/CONTROLLER & CABLES | \$499 |
| • 20 Mb INTERNAL HARD DISK W/CONTROLLER & CABLES | \$699 |
| • 20 Mb "AT" COMPATIBLE RODIME DRIVE | \$599 |
| • CDC FULL HEIGHT MICROPROCESSOR CONTROLLED FLOPPIES | \$110 |
| • CDC HALF HEIGHT FLOPPIES | \$ 99 |
| • TANDON TM100-2 FULL HEIGHT FLOPPIES | \$105 |

MEMORY CHIPS

- | | |
|---------------|--------|
| • 64K 150 ns | \$.95 |
| • 128K 150 ns | \$6.95 |
| • 256K 150 ns | \$5.25 |

IBM COMPATIBLE BOARD PRODUCTS

- | | |
|---|-------|
| • COLOR GRAPHICS CARD | \$110 |
| • MONOCHROME GRAPHICS CARD | \$150 |
| • PARALLEL CARD | \$ 39 |
| • SERIAL CARD | \$ 49 |
| • FLOPPY DISK CONTROLLER | \$ 65 |
| • MULTIFUNCTION BOARD UP TO 640K SERIAL/PARALLEL
CLOCK/CALENDAR, GAME PORT (INSTALLED) | \$150 |
| • ABOVE BOARD WITH 640K INSTALLED | \$225 |
| • AST 6 PAK WITH 64K | \$249 |
| • WDC HARD DISK CONTROLLER | \$170 |
| • XEBEC HARD DISK CONTROLLER | \$160 |

MISCELLANEOUS

- | | |
|---------------------------------|-------|
| • RGB COLOR MONITOR | \$279 |
| • FLAT SCREEN AMBER TTL MONITOR | \$139 |
| • 135W POWER SUPPLY | \$ 95 |

SOFTWARE

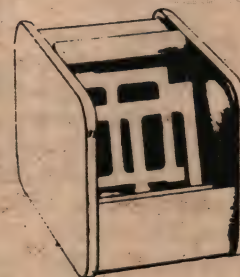
- COMPLETE BUSINESS AND VERTICAL
- ALL FINANCIALS
- LEGAL
- MEDICAL
- DENTAL
- CHURCH
- SCHOOL
- MANUFACTURING
- WHOLESALE DISTRIBUTION
- SERVICE STATION

**CALL
FOR
PRICING**

WE ALSO HAVE IBM AND COMPAQ AVAILABLE

SOLID OAK ROLLTOP DISKETTE STORAGE UNITS

*Beautifully Designed
For The Home
Or Executive Offices*



RT-90
34⁹⁵



49⁴⁵

RT-180

- AN AFFORDABLE & ELEGANT GIFT SUGGESTION
- SOLID OAK
- NO MAR RUBBER FEET
- SMOOTH ROLL TOP ACTION



Information Systems Inc.

13031 SAN ANTONIO DR. #117, NORWALK, CA 90650 213-929-8891

800-523-1789 800-624-2499 in CA

MISCELLANEOUS

Frequency Doubling And Other Fun Things To Do With Digital Pulses

by Les Solomon

If you haven't spent any time using digital logic ICs, then you know that there are many different discrete IC digital frequency divider chips currently available at your local parts emporium.

This is great since often we start out with a higher frequency than needed and need to reduce it, using these ICs we can select the proper IC, or combination of ICs, to create the desired "count down."

However, as stated somewhere in Murphy's Law, every once in a while you find that for one reason or another, you have to *double* the frequency of a particular digital signal. Unfortunately, there are no ICs that can do this directly. Yes, it is possible to drive an IC that uses edge-detection to flip (or flop if you really feel like covering all bets) on both sides of the applied square wave, but in these cases, the output waveform can become highly asymmetrical and cannot really be used.

However, you can "trick" certain ICs into performing the act of frequency doubling, and at the same time retain a reasonably square-wave output.

A circuit to do this is shown in Figure 1. All it needs is a 74121 Monostable Multivibrator, part of a 7404 Inverter package, one resistor and a couple of capacitors.

This circuit works because of the finite propagation delay inherent in any semiconductor device--in this case, the 10 to 15 nanoseconds in the 7404 Inverter.

The 74121 is a Monostable Multivibrator that when triggered causes its Q and not-Q outputs to change state for a time period determined by the RC time constant coupled to pins 10 and 11.

There are three different ways to trigger the monostable, dependent on the signals applied to the A1, A2, or B inputs (pins 3, 4, and 5 respectively). These are:

1. If A1 and A2 are grounded, bringing input B from ground to high.
2. If inputs A1 and B are high, bringing A1 from a high to a low.
3. If inputs A2 and B are high, bringing A1 from a high to low.

The propagation delay that occurs between the A1 and A2 inputs (caused by the 7404 Inverter) permits the monostable to flip on the rising edge of the input waveform, while the small capacitor connected between the A2 and B inputs allows triggering on the negative edge.

Since both these actions trigger the monostable, the output signals at either the Q or not-Q outputs is twice the original input frequency.

By proper selection of R1 and C1, the doubled frequency duty cycle can be made to be 50% (square-wave).

However, there is one drawback. The values of R1 and C1 will have to be selected for one particular input frequency and will have to be changed if the

input frequency is altered. If this is not done, then the doubled output signals can run into each other in one case, or become spikes in the other case.

External Control

Several people have asked how they can use the output port (parallel or serial) on their computer to control external devices. It appears that they know how to output data to the port, but at the moment they don't have any external control hardware connected.

Since most computers use TTL logic chips in their construction, this piece will be based on this form of logic. As you recall, in TTL, a logic-0 is an almost ground (or zero) voltage, and a logic-1 is between almost three and five

volts (normal TTL voltage).

There are also two factors present in the output stage of any logic device--called current "sink" or "source."

When a device "sinks" current it means that when its output stage is in the logic-0 state, the stage can conduct a certain amount of current when in its logic-1 state.

Due to the way it is fabricated, TTL logic can sink more

current than it can source--that is why TTL is sometimes called "current-sinking" logic. The spec sheet for each IC shows its source or sink capabilities.

Let us assume that we want to operate a low-power relay that in turn will control some external device. Such a circuit, shown in Figure 2A, can work

Continued on page 80

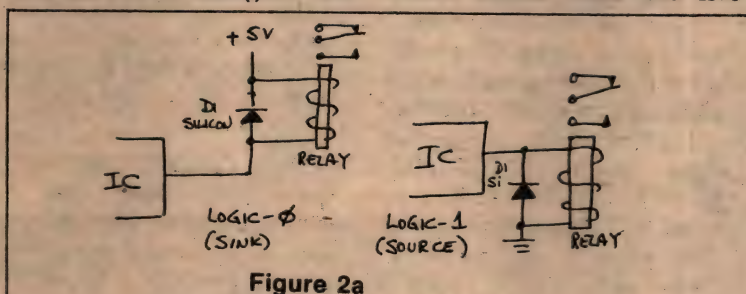


Figure 2a

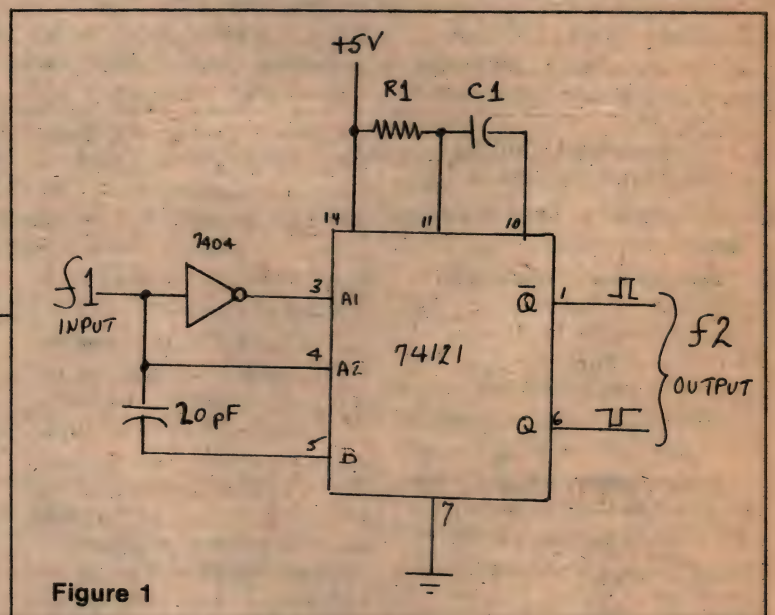


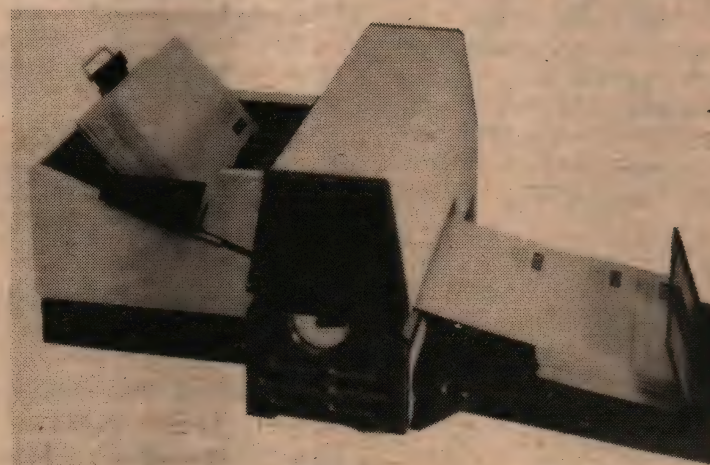
Figure 1

Norcom Electronics Announces New Printing Concept

New direct impression printer handles wide variety of addressing and correspondence applications.

A versatile flat-bed printer that handles addressing applications, continuous forms and produces near letter-quality correspondence for the office or mailroom is now available from NORCOM Electronics Corp. Easily interfaced with most computers, the new DP-80 prints directly on a variety of media, offering a wide range of applications; from automated addressing of virtually any size envelope, pamphlet or magazine (up to 1/16th inch thick); to producing continuous forms and near letter-quality correspondence, even bar codes.

The DP-80 is like getting two printers in one. It can handle both automated addressing, as well as correspondence applications. For mailrooms, this revolutionary system will improve productivity, reduce the cost of supplies, and in



many cases eliminate the need for label affixers. The DP-80 will print addresses directly on envelopes at a rate of 2,500 #10 envelopes per hour.

An outstanding feature of the NORCOM DP-80 is the flat-bed paper path that delivers a smooth flow of media to the printer. This straight-through feeding system permits printing directly on virtually any size

envelope, catalogs, multi-part forms and magazines up to 1/16th inch thick without bending the materials.

The convenient keypad at the front of the DP-80 is designed for ease of use and quick adjustment. At the touch of a button, the operator can change the size of characters, select near letter-quality mode, or set top and left margins for different size forms,

eliminating the need for software reprogramming.

Options further enhance the flexibility of the new printer. An Envelope/Sheet Feeder provides automatic feeding of any size envelope or single documents, from small cards and tags to oversized materials.

Other options are the tractor feed for computer paper, labels, and forms of various sizes, and the roll holder which facilitates the use of rolls of paper or labels. The built-in paper cutter allows the user to cut these materials to desired lengths. A 2K buffer is standard and an 8K buffer is available as an option.

The versatile DP-80 is the answer to the diverse printing needs of small businesses and of large mailrooms.

For further information contact NORCOM Electronics, 675 Third Avenue, New York, NY 10017.

Mention that you read about it in *Computer Shopper*. •

Paradyne Announces New 1200 BPS Auto-Dial Modem

Paradyne introduces the FDX 1200, a 1200 bps full-duplex, auto-dial modem designed for two-wire Public Switched Telephone Network (PSTN) applications.

The FDX 1200 modem fully automates call connection, information transfer and disconnection for synchronous or asynchronous host/terminal or terminal/terminal applications. Dual RS-232C ports provide continuous access and alternate use of synchronous and asynchronous terminal applications without manually re-terminating the modem.

Using simple English display formats, help files and prompt sequences, specific operating parameters are established



quickly and easily. In the command mode, the user can monitor call progress and change configuration parameters to support a wide variety of applications. Both default and user-defined parameters and

telephone directory information are stored in memory and are not affected by random or sustained loss of AC power.

Standard features include auto-originate/auto-answer and reverse calling modes,

auto-rate speed detection, tandem and alternate dialing with tone and trunk/circuit busy recognition, Hayes "AT" command set, call progress monitoring and extensive diagnostics. The FDX is FCC registered for direct access to the PSTN and is compatible with AT&T 212A, 113, 103 and (CCITT) V.22A/B standards. An optional error detection capability is available to ensure error-free data transfer.

An automatic adaptive equalizer, combined with selective compromise equalizers, maintains data integrity over the wide range of circuit conditions encountered in dial-line applications. The unique design of the FDX 1200 allows it to communicate with most

other manufacturer's current-generation 1200 and 300 bps modems while supporting both bit and character-oriented synchronous and asynchronous protocols.

The FDX 1200 scheduled for delivery during the second quarter 1985 at a special introductory, quantity one price of \$365. The modem may be up-graded to include operation at 2400 bps (CCITT V.22bis) anytime after purchase for a one-time factory charge of \$275.

For additional information write to Paradyne Corporation, 8550 Ulmerton Road, Largo, FL 33540.

Mention that you read about it in the *Computer Shopper*. ●

Frequency Doubling Continued from page 79

with either a logic-1 or a logic-0 output.

Select a relay whose coil requirements fall within the voltage (5-volts in the case of TTL) and current source or sink of the output TTL chip.

If you need a higher-powered relay that requires more voltage or current than can be supplied by the output stage of the TTL chip, then use the IC to control a suitable transistor-relay driver such as that shown in Figure 2B.

Note that a silicon diode (D1) is always connected across the coil of the relay (or any inductive load being used). This diode absorbs the back emf that is produced when current suddenly ceases to flow through an inductor.

If allowed to generate, the back emf can reach a high enough voltage to catastrophically destroy the associated

transistor (Q1 in this case). Observe that the diode is reverse biased—that is, the cathode is connected to the source of positive voltage—so that it will not conduct under normal circuit conditions.

In Figure 2B, the positive-going output signal from the computer drives npn transistor Q1 through base-current limiting resistor R1. The value of this latter resistor is not critical and could be several hundred ohms or somewhat greater.

Relay coil K1 acts as the collector load. This relay coil is selected to work with the amount of current (and the maximum collector voltage) of the transistor selected for Q1.

As previously mentioned, silicon diode D1 is "reverse-connected" across the coil of K1. When the current flow through the coil ceases, at the first negative-going ringing alternation, D1 shunts the unwanted sine-wave train thus terminating the back emf, and

protecting Q1.

The circuit shown in Figure 2C can be used to control ac-type circuits working with reactive loads such as motors, heavy duty relays, etc.

Note that in the interests of safety, there is no physical electrical path between the input and output of an opto-coupler—all action is via an internal light beam. **WARNING: VERY IMPORTANT:** Keep in mind that the ac-line side of this circuit can kill if mishandled.

In operation, when the positive-going signal from the computer reaches the LED portion of the opto-coupler, it causes the internal LED to glow. The presence of the light beam (which is the only coupling between the input and output circuits) causes the photo-sensitive triac within the opto-coupler to turn on.

This action, in turn, causes the main power triac to turn on thus completing the ac cir-

cuit from the power source through the load and back to the power source. The current-handling capability of the power triac should be selected for the load being controlled.

The two resistors and the capacitor allow this circuit to be used with load having inductive components (motors, relays, etc.).

Both of these circuits can be driven from one line from the computer output port. All you have to do is call the pertinent port, and output a bit on the selected line.

However, there may be a problem. In each of the circuits discussed, the load power will be turned on only as long as power from the computer is applied to the driving state. In normal operation, the selected bit on the selected output port may be present for only a very short time, while you may want the external power to be applied for quite a long time, and the computer must be capable of doing other things in

the meantime.

To overcome this problem connect the computer output line to the clock input of any kind of flip-flop as shown in Figure 2D, and connect the Q- or not-Q outputs (depending on the requirements of the driven circuit) to the power control circuit.

Thus, the first computer output signal will turn on the flip-flop and the associated external circuit will remain triggered as long as the flip-flop remains in the particular state.

At some selected time period later, another computer signal can be applied to toggle the flip-flop to turn off the external circuit. Thus, the flip-flop acts as a one-bit memory for as long as its dc operating power is applied.

A forthcoming column will discuss what can be done if your computer or microprocessor system does not have an output port—and you would like to control some small portion of the world. ●

Figure 2
Frequency Doubling

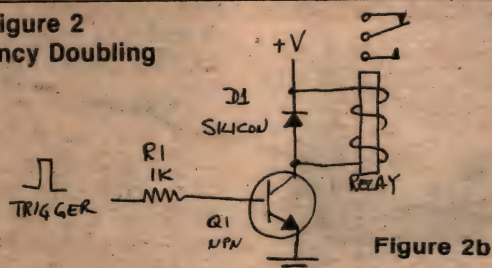


Figure 2b

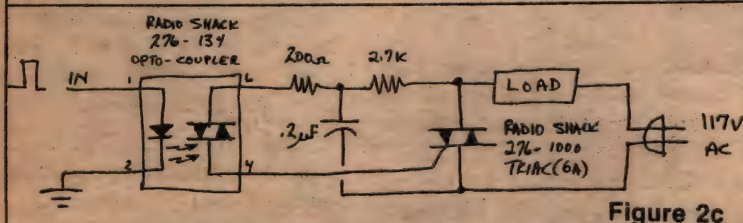


Figure 2c

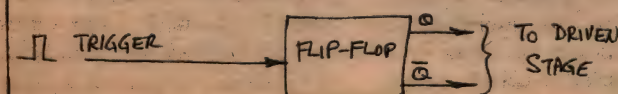


Figure 2d

General Electric Introduces "Expert" Software

General Electric Company scientists recently unveiled software that dramatically reduces the time it takes to build expert systems—the special programs that enable computers to mimic the reasoning process of human authorities on a given subject.

Known as GEN-X, the new GE software will enable experts in diagnostics, maintenance and other fields to readily input their accumulated knowledge and experience into a computer.

Developed at GE's Research and Development Center in

Schenectady, NY, the GEN-X software is being introduced at the Ninth International Joint Conference on Artificial Intelligence here. The conference opened recently at the University of California at Los Angeles.

According to Dr. Peter W. Dietz, manager of the GE R&D Center's Engineering Information Systems Branch, the new software has several unique features, including specialized graphics such as easy-to-follow decision trees and rule spreadsheets.

"These graphics provide

people interested in developing expert systems with a highly "user-friendly" framework in which to organize their expert knowledge," he said.

GEN-X also has a unique modular design that facilitates testing, debugging, and adding rules, and is designed to run on conventional microcomputers, Dr. Dietz added.

Development of existing first-generation expert systems has required the services of highly specialized artificial intelligence researchers known as "knowledge engineers." These

Continued on page 136

HEATH/ZENITH

BASIC Data Base Part I

by Frank Dutton

Introduction

As implied by the name, this program comprises a database system written in BASIC language. The database itself is comprised of 12 program modules. The main module is a menu of operations as well as a facility for opening the requested file; it, in turn, CHAINs the appropriate program module to handle the operation selected from the menu by the user. This method requires substantially less memory for the programming as well as allowing for easier modification and clearer programming. The accompanying article gives brief information as to possible applications for the database program, brief comparisons to commercially marketed programs and then follows with instructions to the user concerning the operations available through this program and how each should be used.

This database program allows the user to: create data entry form on screen; enter records to a file; review and/or revise the records in a file; search for and select given records from the file based on the criteria input by the user; write the contents of a Random Access disk file to a Sequential file for use by other software (i.e. a datafile for Wordstar or other word processor); project the records of a given file to a new file using only specified fields from the original file; get the total and average from user requested fields for all records in a given file; compute the records in a file by performing calculations on the fields of each record; list records from file to CRT or printer either as full records or by fields in columnar format; sort the file on one field; empty the file of all records; save a RESULT dataset produced by another function.

One of the first and best natural applications for a new computer system in the home or home centered business is as a filing system. Unfortunately, however, this usually requires either the purchase of an expensive database management software package or a fair knowledge of BASIC programming in order to write one's own file management system

for the purpose at hand. With this in mind, I have written a BASIC database program which should easily solve most filing and data manipulation problems encountered by new computer users.

Data bases are among the most useful and versatile of the various types of software available for computers. A data base can be used to keep track of almost anything that provides a means of extracting the data entered in a variety of useful formats. Household or business inventories; catalogs of collections; names, addresses, and various qualifying categories for mailing lists; order entry, processing and billing; accounts receivable and aging reports; expense account lists and anything else that lends itself to a list format are excellent candidates for database uses. Not only may a list be kept, various categories may be entered after each item and then the list may be separated, sorted, broken down, or computed along these various sub-categories and sub-lists or totals generated without ever having to re-enter the data. Once data is entered it is extractable in almost any form.

This BASIC database program allows the user to create his data entry form on screen and include explanatory information on the form. The user may then enter data, review and/or revise records, search for specific data and retrieve records containing the specified data, write sequential output files for use as data files by other software (i.e. word processors), make a new dataset containing only certain fields projected from an existing dataset, compute numeric fields within all records of the file, get total and average figures from given fields of the records in file, output data from the file to a printer or the CRT in either the full record form or in columnar format with only the data from specified fields being shown, empty all records from a file, save a result dataset, or sort a file.

In designing the following program I have tried to make it as functional as possible for the inexperienced user as well as making the programming as simple as reasonably possible to use. Although it is possible without a great deal of effort

to trip the programming up, any reasonable amount of care in its use should result in very satisfactory performance. Ease of use, error trapping for common mistakes and relatively simple, straightforward programming to allow the user to follow the program were taken to be priorities as this piece was written. It was also deemed necessary that the program be as widely applicable as possible and, therefore Microsoft BASIC language was used and there are no machine language subroutines used. This program should be immediately transportable to any computer using Microsoft BASIC and easily translatable to most other computers. For some computers it will be necessary to change the LOCATE statements by reversing the coordinates; as written, the ROW coordinate is given first and followed by the COLUMN coordinate. For the generation of data entry forms on screen it is necessary that the computer being used have the capability to read the characters from the screen into a string; check your BASIC language for the SCREEN command to see if this is possible. This program has been written on a Zenith Z-100 computer under the MS-DOS operating system. The author has encountered no problems in running the program on other MS-DOS computers after saving the program in ASCII code and then loading the program to other computers from MS-DOS disks formatted for the Zenith. This procedure was also tried with the IBM-compatible Columbia computer and the programming operated well with the exception that the flashing cursor was not present for some operations. This proved to be only a very minor inconvenience, the program works perfectly on the IBM compatible Zenith Z-150. For any readers not wishing to manually enter the program into the computer, the author will furnish the program saved in ASCII code on 5 1/4" diskettes at a cost of \$15.00 each copy to cover the cost of diskettes, postage and handling. Unless otherwise requested, disks will be in IBM/MS-DOS format. The author can also supply the programming in a number of CP/M formats (all double side,

```

>>>>  MASTER MENU SCREEN  <<<<

-----
MASTER OPERATIONS MENU
-----
1 Create New File           2 Enter Data to File
3 Review/Revise Records    4 Search - Select Records
5 Write Sequential File     6 Project Records in File
7 Compute File - Tot. & Avg. 8 Compute File by Fields
9 List Records to CRT or Printer 10 List Records - Columnar Output
11 Sort File                12 Empty File
13 Save Result Set          14 Finished
-----

NUMBER OF OPERATION DESIRED IS :

-----
TABLE OF VARIABLES
-----
Variable Name  Type Array  Usage of Variable
-----
ANSWER         $!      Answer to question asked of user
CHK            $       String used to check or manipulate data
CHK            $       Counter used to check various items
CHKDATA        $%:M    Comparison data used in sort procedure
CHKREC         $       Comparison record number used in SORT
COUNTER        $       In CREATE procedure counts underscores of fld.
D              $       Record data in buffer
DAT            $       Data being read from DEF or FRM file

```

Continued on page 147

double density) for those with CP/M computers. It should be noted that the screen commands included in the programming will not work on most CP/M computers and modifications would be necessary to this portion of the programming. For obvious reasons, it is not possible to guarantee that the diskettes will be readable or that the programming will work correctly on the reader's computer. Although the program has been tested and appears to work well it is also possible, or of course, that some undiscovered bugs do remain in the program.

The author has used and is acquainted with a number of commercial database software programs. This BASIC program is modeled very loosely after a commercial database manager. The following BASIC database operates from menus. Those users who find this BASIC program to be of value but also find that they need more speed, capacity and features might well consider a commercial database as a step up and should encounter no difficulty in using many available which operate with English-like commands, especially if they have used this program. Commercial databases allows definition of a greater number of field types and a great deal more power in computations. Many more functions are provided as well as the capability

to perform operations on multiple fields at the same time. For complex data manipulations some commercial programs allow the user to make a permanent file of the commands to be used and then just call up this command file to automatically process the data. Report writers for specialized output such as statements and invoices are also available on many commercial database programs.

Database Program

The following BASIC data base program is modular. The main module presents a menu of operations to the user and when the option is chosen the appropriate module is chained into memory and the operation carried out. This not only makes modifications easier and bugs simpler to find but keeps the amount of program in memory at any given time to a minimum. Variable names in the programming are indicative of their use as much as possible. For some computers which may recognize only the first two characters of a variable name it will be necessary to change the names as many are redundant within the first few characters. REM statements are included for program clarity. Should the user desire to remove REM statements, caution must be exercised as most GOTOs and GO-

Continued on page 146

Part No.	Pins	Function	Price	Part No.	Pins	Function	Price
SN7400N	14	29		SN74150N	24	195	
SN7401N	14	29		SN74160N	16	59	
SN7402N	14	29		SN74161N	16	59	
SN7403N	14	29		SN74162N	16	59	
SN7404N	14	35		SN74163N	16	59	
SN7405N	14	49		SN74164N	16	69	
SN7406N	14	49		SN74165N	16	69	
SN7407N	14	49		SN74166N	16	69	
SN7408N	14	29		SN74167N	16	295	
SN7409N	14	35		SN74170N	16	159	
SN7410N	14	29		SN74172N	24	495	
SN7411N	14	29		SN74173N	16	85	
SN7412N	14	29		SN74174N	16	59	
SN7413N	14	39		SN74175N	16	59	
SN7414N	14	49		SN74176N	14	79	
SN7415N	14	49		SN74177N	14	79	
SN7416N	14	59		SN74178N	14	149	
SN7417N	14	59		SN74180N	14	69	
SN7420N	14	19		SN74181N	24	195	
SN7421N	14	59		SN74182N	16	105	
SN7422N	14	59		SN74184N	16	229	
SN7423N	16	69		SN74185N	16	229	
SN7424N	14	39		SN74186N	16	229	
SN7425N	14	39		SN74187N	16	229	
SN7426N	14	39		SN74188N	16	229	
SN7427N	14	25		SN74189N	16	229	
SN7428N	14	59		SN74190N	16	229	
SN7429N	14	35		SN74191N	16	229	
SN7430N	14	35		SN74192N	16	229	
SN7431N	14	35		SN74193N	16	229	
SN7432N	14	39		SN74194N	16	229	
SN7433N	14	39		SN74195N	16	229	
SN7434N	14	39		SN74196N	14	75	
SN7435N	14	39		SN74197N	14	75	
SN7436N	14	39		SN74198N	24	119	
SN7437N	14	25		SN74199N	24	119	
SN7438N	14	49		SN74200N	14	119	
SN7439N	14	49		SN74201N	14	119	
SN7440N	14	19		SN74202N	14	119	
SN7441N	10	89		SN74203N	14	119	
SN7442N	10	89		SN74204N	14	119	
SN7443N	10	89		SN74205N	14	119	
SN7444N	10	89		SN74206N	14	119	
SN7445N	10	89		SN74207N	14	119	
SN7446N	10	89		SN74208N	14	119	
SN7447N	10	89		SN74209N	14	119	
SN7448N	10	89		SN74210N	14	119	
SN7449N	10	89		SN74211N	14	119	
SN7450N	10	89		SN74212N	14	119	
SN7451N	10	89		SN74213N	14	119	
SN7452N	10	89		SN74214N	14	119	
SN7453N	10	89		SN74215N	14	119	
SN7454N	10	89		SN74216N	14	119	
SN7455N	10	89		SN74217N	14	119	
SN7456N	10	89		SN74218N	14	119	
SN7457N	10	89		SN74219N	14	119	
SN7458N	10	89		SN74220N	14	119	
SN7459N	10	89		SN74221N	14	119	
SN7460N	10	89		SN74222N	14	119	
SN7461N	10	89		SN74223N	14	119	
SN7462N	10	89		SN74224N	14	119	

Jameco
ELECTRONICS

Mail-Order Electronics • Worldwide • Since 1974
Jameco
ELECTRONICS

Commodore Accessories

**RS232 Adapter
for VIC-20 and
Commodore 64**

The JE232CM allows connection of standard serial RS232 printers, modems, etc. to your VIC-20 and C-64. A 4-pole switch allows the inversion of the 4 control lines. Complete installation and operation instructions included.

• Plugs into User Port • Provides Standard RS232 signal levels • Uses 6 signals (Transmit, Receive, Clear to Send, Request to Send, Data Terminal Ready, Data Set Ready).

JE232CM \$39.95

**VOICE SYNTHESIZER
FOR COMMODORE VIC-20 AND C-64**

Plug-In — Talking in Minutes!

JE520CM. \$99.95

TRS-80 Accessories

MPI 5 1/4" DISK DRIVE

• Use as a second disk drive • Single-sided • Single/double density • Full-height drive • 48 TPI • Documentation included • Weight: 3.7 lbs.

MPI51S. \$89.95

EXPAND TRS-80 MEMORY
TRS-80 MODEL I, III

Each Kit comes complete with eight M5290 (UPD416/4116) 16K Dynamic RAMs and documentation for conversion. Model I: 16K equipped with Expansion Interface can be expanded to 48K with 2 Kits. Model III: Can be expanded from 16K to 48K using 2 Kits. Each Kit will expand computer by 16K increments.

TRS-16K3 200ns (Model III) \$6.29
TRS-16K4 250ns (Model I) \$5.49

TRS-80 COLOR AND COLOR II

Easy to install Kit comes complete with 8 each 4164N-20 (200ns) 64K Dynamic RAMs and documentation for conversion. Converts TRS-80 Color Computers with D, E, ET, F and NC circuit boards to 32K. Also converts TRS-80 Color Computer II to 64K. Flex DOS or OS-9 required to utilize full 64K RAM on all computers.

TRS-64K-2. \$11.95

Update! TRS-80 MODEL IV, 4P Update!

Easy to install Kits come complete with: TRS-64K-2 (8 ea. 4164N-20 (200ns) 64K Dynamic RAMs); TRS-64K-2PAL (8 ea. 4164's plus PAL chip) and documentation for conversion.

TRS-64K-2 Expands Model IV from 16K-64K or Model IV

TRS-64K-2PAL Expands Model IV (w/Black & White

Monitors only) from 64K to 128K \$29.95

• TRS-80 Model 100 • NEC • Olivetti

Easy to install module plugs right into the socket increasing memory in 8K increments. Complete with module and documentation for installation.

M1008K (TRS-80 Model 100 Expansion) \$39.95 ea.

NEC8KR (NEC PC-8201A & Olivetti M10) \$39.95 ea.

or 3 for \$99.95

NEW! NEW! TANDY 200 NEW! NEW!

NEW! Easy to install module plugs right into the socket increasing memory

in 24K increments. Complete with module & documentation for installation.

M200R (Tandy 200 Expansion) \$149.95 ea.

or 2 for \$274.95

PROMETHEUS MODEMS

**Intelligent 300/1200
Baud Modem with Real
Time Clock/Calendar**

The ProModem™ is a Bell 212A (300/1200) intelligent stand-alone modem • Hayes command set compatible plus an additional extended command set • Shown with alphanumeric display option.

PM1200 RS-232 Stand-Alone Unit. \$299.95

OPTIONS FOR ProModem 1200

PM-COM (ProCom Communication Software) \$79.95

PM-OP (Options Processor) \$79.95

PMO-64K (Options Processor Memory — 64K) \$ 8.49

PM-ALP (Alphanumeric Display) \$79.95

PM-Special (Incl. Options Processor, 64K Memory and Alphanumeric Display) \$149.95

DATA BOOKS


30009 Intel Data Book (1984) \$9.95

30013 Zilog Data Book (1984) \$9.95

210830 Intel Memory Components Hndbk. (1983/84) \$14.95

230843 Intel Microsystem Components Hndbk. (1983/84) \$19.95

30022 National Logic Data Book Set (1984) \$24.95

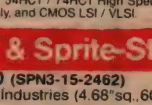
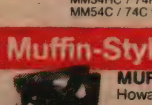
Contains information on National's TTL product line and CD4000 family.

This includes 7400, 741, S, AS, LS and ALS Series devices, and

MM54HC / 74HC / 54HCT / 74HCT High Speed Micro CMOS family,

MM54C / 74C family, and CMOS LSI / VLSI

Muffin-Style & Sprite-Style Fans



MUF60 (SPN3-15-2462)

Howard Industries (4.68" sq., 60cfm) \$9.95

SU2C7 Reverse Flow

EG&G Rotron (3.125" sq., 32cfm) \$9.95

******* APPLE Accessories *******
JAMECO's APPLE Compatible Products
**16K RAM Card
(Language Card)
For Apple II and II+**

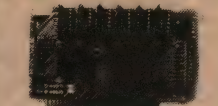

The JE860 RAM Card allows the Apple II and II+ computers to expand from 4K to 64K. Fully compatible to Microsoft Software, Run AppleSoft, DOS, CP/M and Pascal. Complete with instructions. Key: (a,b)

JE860 (ARC-16K/MEM-1) \$39.95

**Controller Card
For Apple II, II+ & IIe***

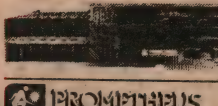

The JE875 is a standard Apple Controller Card capable of handling up to two drives. Easy to install. Recommended drives: ADD-514 or ADD-12. Complete with instructions. Key: (a,b)

JE875 (ACC-1) \$49.95

**80-Column plus 64K
RAM for Apple IIe***


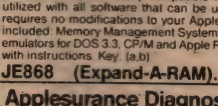
The JE864 is a standard Apple Controller Card capable of handling up to two drives. Easy to install. Recommended drives: ADD-514 or ADD-12. Complete with instructions. Key: (a,b)

JE864 \$69.95

**Five Key
Software Programs! For Apple II, II+ and IIe***


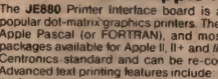
The JE868 is functionally compatible with the Apple II language card and can be utilized with all software that can be used with a standard 16K card. The JE868 requires no modifications to your Apple computer. Five key software programs are included: Memory Management System, utilities, diagnostics, demos, and RAM disk emulators for DOS 3.3, CP/M and Apple Pascal. Also features DOS relocater. Complete with instructions. Key: (a,b)

JE868 (Expand-A-RAM) \$119.95

**128K RAM Card
For Apple II, II+ and IIe***


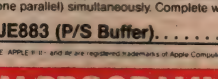
The JE877 is a standard Apple Controller Card capable of handling up to two drives. Easy to install. Recommended drives: ADD-514 or ADD-12. Complete with instructions. Key: (a,b)

JE877 (DRV-1/Applesurance II) \$69.95

**Applesurance Diagnostic Disk Controller Card
Prevents Crashes! For Apple II, II+ and IIe***


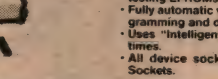
The JE877 serves as a diagnostic tool, an assurance/maintenance tool and a dual disk drive controller. The JE877 will verify and check the operating hardware of your system each time you turn on your Apple II, II+ or IIe. Test your RAM, ROM, CPU, and disk drives. Diagnostic routines may be cancelled at the touch of a key. Complete with instructions. Key: (a,b)

JE877 (DRV-1/Applesurance II) \$69.95

**Parallel Printer Card
For Apple II, II+ and IIe***


The JE880 Printer Interface board is an intelligent interface to most of today's popular dot-matrix graphics printers. The JE880 is fully compatible with Apple CP/M, Apple Pascal (or FORTRAN), and most other operating systems and software packages available for Apple II, II+ and IIe. The JE880 is shipped configured for the Centronics standard and can be re-configured for other standards if necessary. Advanced text printing features include: video screen echo ON or OFF; auto-disable linefeed after carriage return; set/clear the 8th bit of the output data; set left margin and more! Complete with instructions. Key: (a,b)

JE880 (PRT-1) \$59.95

**Parallel/Serial Buffer Card
For Apple II, II+ and IIe***


The JE883 provides the user with up to 64K of additional or buffered memory (16 pages of information). Using the parallel jumper cable supplied, the JE883 will attach to the JE880 (above). Parallel Card needed for operation. The JE883 includes a standard parallel input with both parallel and serial (RS232) buffered outputs. With these features you may access and buffer information to two types of printers (one serial, one parallel) simultaneously. Complete with instructions. Key: (a,b)

JE883 (P/S Buffer) \$79.95

EPROM PROGRAMMERS
JE670 GANG EPROM PROGRAMMER 8K to 512K (E)EPROMS


The JE670 is a stand-alone programmer that gang-programs most EPROMs and EEPROMs (up to 512K) from your Master IC. Operation is simple, foolproof and fast.

- Program capacity of 10 EPROMs at one time. Status indicator for each socket.
- Fully automatic Blank-testing, Programming and Margin-testing EPROMs.
- Fully automatic verification against Master, both after Programming and during Margin-testing at two VCC's.
- Uses "Intelligent" algorithms to minimize programming times.
- All device sockets are Zero Insertion Force Textool Sockets.

OPERATION: The JE670 Gang Programmer is fully operated with just 4 pushbuttons. Operation is simplified by employing Jumper Modules ("G" Series) for the different device types. The JE670 is ideal for production programming and testing of IC's.

JE670 GANG (E)EPROM PROGRAMMER (Assembled and Tested) (Includes JM 16A Module) \$695.00

JE670 JUMPER MODULES "G" SERIES (PERSONALITY MODULE) Partial Listing — New JM's to Be Announced

JE670 JM NO.	EPROM/MFG.	PRICE	JE670 JM NO.	EPROM/MFG.	PRICE
JM 08A	2756 (Single Voltage) Intel, National, etc.	\$19.95	JM 08B	TMS2564 TI	\$19.95
JM 16A	2716 Intel, TMS2516 TI, NEC, etc.	\$19.95	JM 08C	MC468764 MC468766 Motorola	\$19.95
JM 32A	2732 Intel, NEC, TI, etc.	\$19.95	JM 012BA	27128 Intel, TI, NEC, etc.	\$19.95
JM 32B	2732 Intel, NEC, National, etc.	\$19.95	JM 025BA	27256 Intel, NEC, Hitachi, etc.	\$19.95
JM 32C	MC468764 Motorola, TI, National, etc.	\$19.95	JM 0512A	27512 Intel, AMD, etc.	\$19.95
JM 064A	2764 Intel, NEC, TI, etc.	\$19.95	JM 0513A	27513 Intel	\$19.95
EEPROMS/MFG.		PRICE	EEPROMS/MFG.		PRICE
JM 013A	5213 52813 SEED	\$19.95	JM 032A	MC468764 Motorola	\$19.95
JM 014A	2816A Intel, Intel, Rockwell, Xicor, etc.	\$19.95	JM 064A	X2864A, X2864B, X2864C Xicor	\$19.95
JM 016B	2816 Intel	\$19.95	JM 0256A	X28256, X286256 Xicor	\$19.95

JE664 EPROM PROGRAMMER 8K TO 64K EPROMS


NEW Low Price!

JE664 EPROM Programmer is completely self-contained — requires no additional systems for operation.

- Emulates PROMs or EPROMs
- Programs and validates EPROMs
- Checks for properly erased EPROMs
- Loads data into internal RAMs by keyboard. EPROM or computer via RS232C option • Compares & copies EPROMs

OPERATION: The JE664 EPROM Programmer emulates and programs various 8-bit word EPROMs from 8K to 64K. Memory capacity. The JE664's RAMs may be accessed for emulation purposes from the panel's test socket to an external microprocessor. "Data" & "Address" displayed in convenient hex. format. Input: 115VAC, 60Hz, 10W. Size: 15" L x 8" D x 3" H. Wt. 5 1/2 lbs.

JE664-A EPROM Programmer (Assembled & Tested) (Includes JM 16A Module) \$795.00

JE665 — RS232C INTERFACE OPTION — The JE665 RS232C Interface Option implements computer access to the JE664's RAM. This allows

the computer to manipulate, store and transfer EPROM data to and from the JE664. A sample program listing is supplied in MIBASIC for CP/M computers. Documentation is provided to adapt the software to other computers with an RS232C port. 9600 Baud, 8-bit word odd parity and 2 stop bits.

JE664-ARS EPROM Programmer w/JE665 Option (Assembled & Tested) (Includes JM16A Module) \$995.00

JE664-ARS-CP JE664-ARS Communication Program (5" Disk & User's Instructions) \$49.95

JE664-CP CABLE Cable for IBM-PC to JE664-ARS Programmer (5' Shielded Cable & Connectors) \$29.95

EPROM JUMPER MODULES — The JE664's Jumper Module (Personality Module) is a plug-in Module that pre-sets the JE664 for proper programming

JE664 EPROM JUMPER MODULE NO.	EPROM	Programming Voltage	EPROM MANUFACTURER	PRICE
JM08A	2708	25V	AMD, Motorola, National, Intel, TI	\$14.95
JM16A	2716, TMS2516 (TI)	25V	Intel, Motorola, National, NEC, TI, AMD, Hitachi, Mostek	\$14.95
JM32A	TMS2532	25V	Motorola, TI, Hitachi, OKI	\$14.95
JM32B	2732	25V	AMD, Fujitsu, NEC, Hitachi, Intel, Mitsubishi, National	\$14.95
JM32C	2732A	21V	Fujitsu, Intel	\$14.95
JM64A	MC468764, MC468764, MC468766	25V	Motorola	\$14.95
JM64B	2764	21V	Intel, Fairchild, OKI	\$14.95
JM64C	TMS2564	25V	TI	\$14.95
JM64E	2764A	12.5V	Intel, AMD, etc.	\$14.95

Jameco's New 1986 Catalog!

Filled with New Products, Reduced Pricing and Valuable Pin-out Data.

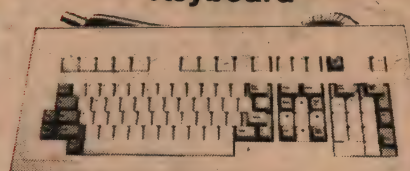
Send \$1 Postage for FREE 1986 Jameco Catalog!

\$10 Minimum Order — U.S. Funds Only CA Residents: Add 6% Sales Tax Spec Sheets — 30¢ each Shipping: Add \$5 plus \$1.50 Insurance Send \$1 Postage for FREE 1986 Jameco Catalog Prices Subject to Change Send stamped, self-addressed envelope to receive a Monthly Sales Flyer — FREE!



1355 SHOREWAY ROAD, BELMONT, CA 94002

11/85 PHONE ORDERS WELCOME — (415) 592-8097 — Telex: 176043

IBM Accessories
**IBM PC/XT Compatible
Keyboard**


IBM-5151 (Equivalent to Keytronic's 5151) \$129.95

Additional Add-Ons Available!
MEMORY EXPANSION KITS
IBM PC, PC XT and Compatibles

The IBM64K Kit will increase memory in 64K byte increments. The Kit is simple to install — just insert the 9 — 64K RAM chips in the provided sockets and set the 2 groups of switches. Conversion documentation included.

IBM64K (Nine 200ns 64K RAMs) \$9.95

IBM PC AT

Each kit comes complete with nine 128K dynamic RAMs and documentation for conversion.

IBM128K (Nine 250ns 128K RAMs) \$79.95

IBM PCXT Equivalent
130 Watt Power Supply
UPGRADE YOUR PC!

• Input: 110V @ 60Hz • Output: +5VDC @ 15A, -5VDC @ 0.5A, +12VDC @ 4.2A, -12VDC @ 0.5A • Plug compatible connectors • Fits into IBM PC • Weight: 6 lbs.

IBM-PS. \$119.95

Prometheus Modems

The ProModem 1200B/BS is a 1200/300 baud modem card which plugs into IBM PC and XT. Provides a third serial comport. Two versions available: 1200B (without software) and 1200BS (with software). The PM1200BS is supplied with powerful MITE communications software from Mycroft labs.

PM1200B (without Software) \$239.95

PM1200BS (with MITE Software) \$274.95

IBM Compatible! DISK DRIVES


Documentation Included

RFD480 (Remex 5 1/4" DS full-ht.) \$ 79.95

FD55B (Teac 5 1/4" DS half-ht.) \$119.95

SA455 (Shugart 5 1/4" DS half-ht.) \$109.95

TM100-2 (Tandon 5 1/4" DS full-ht.) \$129.95

5 1/4" DISK DRIVE ENCLOSURES

Complete with power supply, switch, power cord, fuseholder and connectors

DDE-1FH (Houses 1 full-ht. 5 1/4" floppy drive) \$ 69.95

DDE-2HH (Houses 2 half-ht. 5 1/4" floppy drives — vertical) \$ 79.95

HDDE-1FH (Houses 1 hard drive) \$219.95

General Application Keyboards

Trip on Entrepo Continued from page 54

quality plastic snap boxes, giving good protection and solving the problem of storing wafers. To test the wafer drive, I operated with both wafer and disk drive loads of the same programs. Table 1 gives the

results of several timed loads for both the drive and the wafer. Notice that the times for the wafer drive are not consistent. Sometimes the wafer loads much faster than the disk, but at other times it will be slower. This appears to be related to where the program resides on the wafer. If it is the

TABLE 1

PROGRAM/SIZE	WAFER	DISK DRIVE
3-D MAZE/12963 BYTES	16 SECONDS	34 SECONDS
64 TERM/2575 BYTES	13 SECONDS	8 SECONDS
MENU/1083 BYTES	14 SECONDS	4 SECONDS
MONOPOLE-64/24446 BYTES	25 SECONDS	1 MIN. 2 SECONDS

Now for You... BACKGAMMON

Only \$39.95

- ★ Challenge the computer to an exciting game of backgammon, whether beginner or advanced
- ★ Several levels of difficulty
- ★ Full backgammon board displayed on 80 column monochrome or color display
- ★ Easy to read instruction manual included

For IBM PC, PCjr, XT, requires DOS, disk drive, 80 col. disp.

SEARS ELECTRONICS INC.

Visa MasterCard
Tirrell Hill, Goffstown, NH 03045 (603) 497-3074

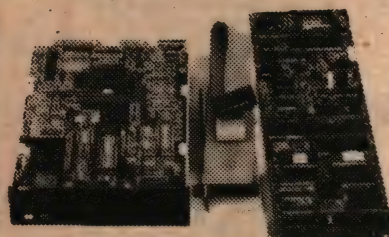
Please send **BACKGAM 1™** (at \$39.95) for my IBM PC, PCjr, XT, Compatible (circle one) & Ask about date for 40 col. disp. game. **ORDER NOW OR CALL FOR DEALER NEAR YOU**

Enclosed is my ☐ Check ☐ M.O. ☐ Visa ☐ Mastercard
Card No. _____ Exp. date. _____

Signature _____
Name _____
Address _____
City _____ State _____ Zip _____

IBM PC Internal Hard Disk

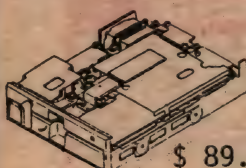
20 MEG \$699.50



TOP QUALITY SEAGATE BRAND
65 msec AVERAGE ACCESS
TIME, HALF HEIGHT SIZE
COMES WITH NAME BRAND
HARD DISK CONTROLLER
CARD, CABLE AND MANUAL
READY TO BE INSTALLED.

ONE YEAR WARRANTY.

10 MEG HALF HEIGHT INTERNAL HARD DISK
COME WITH CONTROLLER CARD, CABLE, MANUAL. \$549.50
ONE YEAR WARRANTY.



SANYO 5.25" HALF HEIGHT, DOUBLE
SIDE, DOUBLE DENSITY 500 KBYTE
DRIVE COMES WITH A STACKING
BRACKET EXCLUSIVELY DESIGNED
FOR IBM PC AND INSTALLATION
MANUAL. AVERAGE ACCESS TIME
93msec, TRACK TO TRACK 6msec.

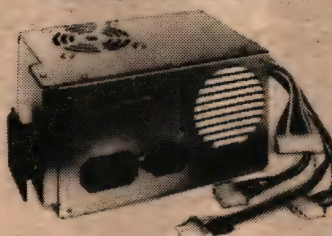
\$89.00

CALL US FOR NEW ITEMS AND FREE CATALOGUE.
TELL US WHAT YOU ARE LOOKING FOR SO THAT
WE CAN SERVE YOU BETTER IN THE FUTURE.

MAXTRON (818) 350-5707

1825A DUFFEE AVE. S. EL MONTE, CA 91733

150 WATT POWER SUPPLY FOR IBM PC/XT COMPUTER



\$139.00

PS 150

- * FIRST OF ITS KIND WITH SINUSOIDAL CURRENT SWITCHING POWER STAGE.
- * ACHIEVED AEROSPACE TYPE RELIABILITY.
- * TESTED FOR 150 WATT (NOT 135 WATT).
- * SWITCHABLE 110 & 220 VOLT INPUTS.



\$109.00

C64, VIC20 POWER SUPPLY



\$29.95

UL LISTED EXTRA POWER TO TAKE CARE EXTRA LOADS
AND HEATING PROBLEMS BEATS THE ORIGINAL

OUTPUT	MAXTRON	COMMODORE
5V DC	1.7A	1.2A
9V AC	1.0A	0.6A

- DATASETTE SPECIAL \$19.95 (SIMILAR TO VIC1530)
- DUAL DISK DRIVE FOR C64 \$349 + \$8.00 SHIPPING
- COVER FOR C64, VIC20, 1541, 1550, GEMINI 10X \$6.95
- DISKETTE DOUBLER WITH GUIDE SLOT \$7.50 + 2.00 SHIPPING
- * C64 CONTROLLED R/C TANK 15.5" LONG WITH C64 INTERFACE BOX, SOFTWARE IN DISKETTE. TOTAL PACKAGE \$109.00
- * PRACTICAL, FUN PACKED KEY TRACER \$9.95 CLAP YOUR HAND ONCE IT WILL TELL YOU WHERE IT IS LOCATED.
- 90 DAYS WARRANTY FOR MOST ITEMS.

VISA & MASTERCARD ACCEPTED DEALERS WELCOMED

MOST ITEMS SHIPPING CHARGE \$4.00, MASTER & VISA CARD ADD 3.0% CALIF ADD 6.5% TAX

Inside Commodore Continued from page 54

specials. Here's the address:
K. Boufal Consulting Service
244 Fitzwater Street
Philadelphia, PA 19147
(215) 925-6469

Service Tips - Saving Yourself Some Trouble

As with most pieces of equipment ever built, Commodore systems have both strong and weak points. The weak parts of the hardware are usually the parts that need service most frequently in any system, and your Commodore is no exception. Let's look at some of the main service problems for some of the most popular pieces of equipment.

Overall common areas of service problems for the VIC and C-64 have been:

1) **Overheating problems.** This is most noticeable in the C-64 and the early 1541s. Internal power loading is high, and heat sinking is somewhat inadequate. One way of dealing with the problem is to use a fan to cool the equipment, take the cover off the 1541, or perhaps install lower power CMOS chips to decrease current loads and, thus, heat. K. Boufal has complete CMOS parts kits for the VIC-20 and 1541 that reduce heat dissipation considerably. Unfortunately, this isn't available for the C-64.

2) **Keyboard problems.** As the machine gets older, both VIC and the C-64 have had key contact problems. This is from dust accumulating in the key switches. A keyboard cover used when the computer isn't in use helps delay the problem. Careful disassembly and cleaning of the problem keyboard can help. Keyboard replacement is an expensive but effective solution. It's usually cheaper than using another computer, though.

3) **Power Supply problems.** The VIC and C-64 both have external AC power supplies. Inside the VIC-20 power supply case is a fuse and transformer. Often the fuse in the VIC supply would blow during a surge. That could be fixed easily and is the main suspect if your VIC doesn't power up.

The C-64's power supply has proved to be inadequate, especially if you are using a bus expander and have several cartridges on it. The supply simply can't provide the power, and the 5 volt regulator inside the power supply case burns open or shorts and blows a fuse. Unfortunately, most C-64s came with a "potted" power supply that can't be repaired. The case can't be opened, and if it could, you would find it full of

Continued on page 85

Super Bowl Sunday

by Cheryl Peterson

Here's the ultimate game for Monday morning quarterbacks. It's your team against a friend's or the computer's. When the computer plays, you decide which of 20 Super Bowl teams you're going up against. Then you pick which team you want to control. The lineups read just as the lineups did the day the teams played their Super Bowl games. Some of the classic teams of all time are on the roster; the 1966 Green Bay Packers with Bart Starr at the helm; the 1982 Washington Redskins; the 1983 Los Angeles Raiders; and the 1978 Pittsburgh Steelers to name a few.

Avalon Hill really got my attention with the documentation. All of the examples used are taken from last year's Super Bowl Game. Joe Montana and the San Francisco 49ers blew away the Miami Dolphins and somehow they manage to make it sound like it was a shame the Dolphins lost. (It was, as any of us from Miami will proudly point out.)

The descriptions of the 10 Super Bowl games whose teams are represented give a nice round look at the way the actual game went. By reading about the game, you can get hints as to what players to watch out for and which of your players are particularly strong that day. The documentation also includes play diagrams for the player positioning for the start of the different types of offensive and defensive choices, with notes about each.

Super Bowl Sunday, lets you call the plays. If the computer is playing, it will respond to your game plan and alter its play calls depending on what you do. For instance, if you

hand the ball off to a particular running back with anything approaching regularity, the computer will set its defense to key on that player. Too many passes may result in picking a defense that goes after the quarterback. Of course, you're free to use the same strategies on the computer.

On-line help is provided. When choosing plays, each player's statistics for the year are shown. When you choose a run play, for instance, the four best runners' number of run attempts, yards gained, average per carry and number of touchdowns scored are displayed. Similar information is provided on all receivers when a pass play is chosen.

The menu driven controls for the game are well done. It's easy to play, if you know enough about football. In two player mode, the offense uses the keyboard the defense the joystick. This makes it fairly easy for both players to keep their plans secret.

If you don't know the difference between a blitz and double coverage, you won't enjoy this game much. The plays that can be called are a bit limited. For instance, although the Miami Dolphins are known for throwing from the shotgun, no provision for this is made in the program. Plays are either run or pass; passes are long, short or flat; running plays are off tackle (top or bottom) or sweep (top or bottom). In a real game, plays are called to the right or left side, but since the program sets the screen up with the teams horizontally, runners actually cut towards the top or bottom of the screen.

Speaking of screens, the plays are run on-screen, so you can see how our team fares.

You call the play, the teams line up, hit any key and the play runs. Nope, you can't change your mind once the play starts.

There are a few things about the game that weren't as detailed as a true football fan would like. Although you have a choice of which quarterback to use for passing plays, no such provision is made for running plays. When the other team has the ball, the program doesn't inform you when your opponent puts in his backup quarterback. (An important consideration when playing a team like the 1982 Dolphins, who changed quarterbacks so often the local newspaper dubbed the combination of Bob Woodley and Don Strock "Woodstock.")

The program does let you look at the statistics, so far in the game. So you can evaluate how well each player is doing. But if you've been paying attention, you'll know that anyway.

Being a dedicated Dolphin watcher finally paid off as I tried my hand at the helm in a game against the 49ers. (I knew we should have won that game.)

So here's the big tip folks--the statistics provided indicate each player's yearly totals and have no bearing whatsoever on the outcome of plays or strategy. As close as I can make it out, the team members play as well (or as lousy) as they did the day of the Super Bowl they played in. Penalties and injuries are randomly determined by the computer with certain statistical probabilities thrown into the random calculations. For instance,

Continued on page 86

Inside Commodore Continued from page 84

rubber-like potting compound. Normally, you have to "dispose" of the supply and buy a new one (for \$50-75!).

Alternatively, you could make your own supply up with a beefier current rating. Maxtron sells a replacement C-64 supply that is overrated. The normal Commodore supply gives 5 VDC at 1.2 A and 9 VAC at .6 A. The Maxtron supply gives 5 VDC at 1.7 A and 9 VAC at 1.0 A. You can also get into the Maxtron supply to repair it, if need be. The supply sells for \$29.95. The address is:

Maxtron
1825A Durfee Ave. S.
El Monte, CA 91733
(818) 350-5707

4) *Abusing the equipment.* Disk drive heads go uncleaned, crackers get dumped into a keyboard, paper gets stuck in a printer through carelessness, and cartridges get jerked in and out of the expansion bus. All of this is wear and tear on equipment that is light duty consumer grade. Care in handling and using the equipment goes a long way in preventing trouble.

Summary

If your Commodore needs service, there are a variety of options available to you. Everything from factory authorized service centers to "do-it-yourself" resources. In the past, service for Commodore computers was some-

what of a question mark. Commodore now seems committed to making it available as possible, but at a price.

The best service option may be investing in a "back-up" unit. At the low close-out prices the remanufactured units are selling for, you can afford to have two machines for what the price of servicing one of them would cost. The age of the disposable computer is here. And, if you aren't doing the servicing yourself, buying two may make the most sense economically.

Many remanufactured components are available from:

C.O.M.B.
14605 28th Ave. North
Minneapolis, MN 55441-3397
(800) 328-0609

NEW! GUIDE TO XENIX™

"XENIX BY EXAMPLE"

- an indispensable training guide for you and your employees.

- Detailed explanation of all commands in the Microsoft Xenix core system. Gives the detail not provided in original Xenix documentation.
- Examples of commands in use.
- Easy reference format.
- Real-Life situations section: gives real-life examples of situations that arise and how to correct them.
- Written by the area's LEADING AUTHORITIES on the Xenix operating system.
- Over 200 pages of clear, concise information. An invaluable tool for ANYONE using Xenix.

ONLY \$39.95 Send check or money order for \$39.95 plus \$3.50 postage and handling per copy to:

M & M TECHNOLOGIES CORPORATION
P.O. BOX 237, DEPT. C.S.
HERNDON, PA. 17830

USE YOUR MASTERCARD OR VISA—

CALL (717) 758-9260 or (717) 758-9115

Pa. residents please add 6% sales tax.

XENIX-TM MICROSOFT CORP.

DATA BROKERS

"THE PRICE AND SERVICE LEADER"

1-800-833-2600

FREE SHIPPING-NO CREDIT CARD SURCHARGE
NO EXTRA CHARGES-EVER!

HAYES COMPATIBLE MODEMS

US Robotics Courier 2400 - 300/1200/2400 - Hayes + 2400	\$ 489.00
US Robotics Passport 1200 - the smallest Hayes compatible	\$ 219.00
US Robotics Personal Communicator - 300/1200 IBM internal with Teipac 3.0	\$ 299.00
Anchor Express 300/1200 with 10 number memory - 100% Hayes	\$ 239.00
Anchor Volkamodem 12 - 300/1200 with 5 year warranty and choice of VM cables	\$ 179.00
Anchor Mark X - 300 baud Smartmodem 300 compatible	\$ 99.00
Multitech MT212AH2 - 300/1200 sync/async 10 number memory	\$ 349.00
Multitech MT224AH - 300/1200/2400 sync/async	\$ 559.00
Cermetek 1200PC - IBM internal with Crosstalk XVI	\$ 349.00
Cermetek Security MODEM - 300/1200 with callback security	\$ 599.00

PRINTERS, TERMINALS, IBM MULTIFUNCTION CARDS & ACCESSORIES

PRINTERS:	
OTC OT-700 - 700 CPS, 136 column ultra high speed Epson FX and IBM PC/XT compatible	\$ 1650.00
CI-3500 - 350 CPS IBM PC/XT, DEC interface - 87 CPS letter quality mode	\$ 1600.00
Legend 1345 - 136 column wide carriage 160 CPS - Epson FX+ graphics compatible	\$ 375.00
Legend 1380 - 80 column 160CPS Epson FX+ Gsrexx compatible	\$ 339.00
Legend CP7 - color printer - IBM compatible	\$ 975.00
Siemens PT88 ink jet, super quiet plain paper 150 CPS parallel 80 column	\$ 689.00
Siemens PT89 ink jet, super quiet, plain paper 150 CPS, parallel 132 column	\$ 819.00

TERMINALS:	
Esprit Systems 6110+ 14" green screen, emulates ADM3A-Hazeltine 1500	\$ 379.00
Liberty Freedom 110 12" green screen non-volatile setup, printer port	\$ 449.00

IBM MULTIFUNCTION CARDS:	
Apstek Handi 1 Plus-memory to 384K, parallel & serial ports, clock calendar game port, Handispooler, Handidisk, LIFETIME WARRANTY	OK\$ 199.00
Apstek Handi 3 - parallel port, clock calendar, Handispooler, Handidisk, LIFETIME WARRANTY	\$ 99.00
Apstek Handi 4 - serial port, clock calendar, Handispooler, Handidisk, LIFETIME WARRANTY	\$ 99.00
STB Chaffeur - displays color graphics data on monochrome monitors, parallel port optional clock calendar, color software compatible	\$ 299.00
STB Graphix Plus II - color graphics and monochrome adapter on one card, includes parallel port and PC Accelerator software	\$ 269.00
STB Super I/O II - parallel port, serial port, clock calendar, game port	\$ 179.00
STB Big Byte - 64 to 384K memory, PC Accelerator software	64K\$ 149.00

ACCESSORIES:	
IBM memory expansion - 128K prime 4164s, 150ns (18 chips)	\$ 17.00
Macintosh/AT expansion - 256K prime 4125s, 150ns (8 chips)	\$ 49.00
DATAGARD - spike and line noise suppressors - single stage 6 outlet	\$ 39.00
	4 stage 6 outlet \$ 99.00

MONITORS:	
Sakata monitors - SG1000 - 12" green screen monitor with composite input	\$ 129.00
SA1000 - 12" amber screen monitor with composite input	\$ 139.00
SA1500 - 12" green screen for IBM PC with cable	\$ 149.00
SG1500 - 12" amber screen for IBM PC with cable	\$ 159.00

DISKETTES:	
Omni premium 5.25" diskettes are critically certified with ultra-polished oxide surfaces, internal lubrication and self-cleaning liner - diskettes are packed 10 to a box with Tyvec sleeve, labels, write protect tabs and hub rings - LIFETIME WARRANTY	
Single sided, single density - SSDD (10/box)	\$ 9.00
Single sided, double density - SSDD (10/box)	\$ 10.00
Double sided, double density - DSDD (10/box)	\$ 11.00

DATALINK Cables are commercial quality data cables built using industrial grade PVC jacketed cable and connectors with gold over-plate pins - DATALINK Cables are 6 feet long and are sold with a LIFETIME WARRANTY	
Centronics/Centronics - IBM/Centronics parallel printer	\$ 16.00
RS232 C - male/male, male/female, female/female	\$ 16.00

ALL EQUIPMENT IN STOCK - READY FOR IMMEDIATE SHIPMENT



Data Brokers 3535 Roundbottom Road Cinti., Ohio 45244

1-800-833-2600

In Ohio & for information Call 1-513-561-0099

Got a technical question - Give us a Call!

- FLOPPY DISK DRIVE -

SALES & REPAIR SERVICE

SPECIAL SALE

Come to ITS for all your repair needs. We offer quick turnaround at a reasonable price on any floppy found on the market.

WE SPECIALIZE IN PRODUCTS MADE BY PERTEC



Independent Technical Service

7821 Alabama Ave., Unit #9, Canoga Park, CA 91304

(818) 704-5696

DRIVE MODEL

DRIVE MODEL	SIZE	1 - 3	4 +
Qume 142 1/2 height (new)	5 1/4" DS/DD	\$109	\$99
Tandon TM65 1/2 height (new)	5 1/4" DS/DD	\$109	---
Tandon TM100-2	5 1/2" DS/DD	\$119	\$109
Qume Trak 848	8" DS/DD	\$250	\$240
TM 848-1	8" SS/DD	\$149	\$139
TM 848-2	8" DS/DD	\$235	\$225
Shugart SA460	80trk 5 1/4" DS/DD	\$109	\$99
Shugart SA465 1/2 ht	80trk 5 1/4" DS/DD	\$119	\$109
Shugart SA475 (PC-AT)	1.2meg 5 1/4" DS/DD	\$149	\$139
Shugart SA801	8" SS/DD	\$199	\$189
Shugart SA851	8" DS/DD	\$275	\$265
Pertec FS511/510	8" SS/DD	\$325	\$300
Corona hard disk sub-system	5 1/4" SMEG	\$449	\$429
For Apple. ST05			

BASE PRICE INCLUDES:

- First \$20 in parts FREE • 30 Day Warranty
- 9 Diagnostic Tests • No Additional Labor Cost
- No charge for common components
- Drive exchange for drives too costly to repair

REPAIRS

5 1/4" - \$53

8" - \$73

(Add \$10 for Double Sided Drives)

Personalized ROMS Now Available

Innovative Computer Accessories (INCA), a manufacturer of computer peripherals of Imperial Beach, CA, to extend their line of products for the Commodore computers, has acquired GC Systems, a firm that manufactures personalized ROMs for these computers. These ROMs include PromMotion, Select-a-Font and Krazy basiK.

PromMotion has up to four different mechanically switchable kernels in one chip. Default to disk drive, new start-up colors and messages, Dvorak keyboard, DOS, restore program, structured listing, simple trace and other small routines are among the options available.

For those who need other

than the standard Commodore character set, Select-a-Font has up to four different character generators, such as Greek, Math or one of customers' own design.

To have fun with friends, Krazy basiK has up to four different BASIC interpreters that change the BASIC keywords according to customer choice.

Additionally, INCA will convert any BASIC program to cartridge form. Program may be any size up to 256 Kbytes.

For further information on these and other INCA products contact, INCA, 1249 Downing Street, P.O. Box 789, Imperial Beach, CA 92032.

Mention that you read about it in the *Computer Shopper*. •

Super Bowl Continued from page 85

although the Dolphins have consistently been penalized less than another team in the history of football, in the 1985 Super Bowl they got more penalties thrown at them than they had all year. When my Dolphins met the 49ers in the first game I played, I ran the game using basically the same game plan as Don Shula did. We were heavily penalized. And the players who had a bad day in Los Angeles last year, had a bad day on my computer. A. J. Duhe missed tackles, right and left. Duper and Clayton couldn't hold on to the ball. Two missed field goals and a failed point after. We got creamed! (Just as happened in the real game.)

Second time around, I switched game plans. Few, if any, throws to the "Marks brothers," Mark Duper and Mark Clayton. Lots of short passes over the middle to Hardy, Cefalo and Moore. Of course, since my place kicker had the worst day of his life on Super Bowl Sunday 1985, I on-

ly let him try one field goal and that was a short one that I could have kicked myself. Anyway, we whipped the stuffing out of them.

One nice feature of the game is its AUTOPLAY mode. You set the teams and the computer plays the game using the teams' typical strategies that season. You can interrupt and change the plays, if you wish.

Considering the teams involved and the wonderful permutations possible, this game could keep real football addicts busy for weeks. Think of the possibilities, the 1966 Green Bay Packers VS the 1981 Oakland Raiders. Since there are three different Miami teams (1973, 1982 and 1984), I had a blast pitting them against each other. You don't have to limit yourself to NFC VS AFC. I tried the 1973 Bob Griese Dolphins against the 1984 Dan Marino Dolphins and had a blast.

Super Bowl Sunday
Avalon Hill Game Company
4517 Harford Road
Baltimore, MD 21214

Save Over 40% On Top Quality GP Printwheels and Thimbles!

Take advantage of these low, low prices for high quality American-made printwheels and thimbles. Precision manufactured by GP Technologies, Inc. and individually inspected for superior performance. Available in a wide variety of popular typestyles for today's leading printers.

GP Technologies Plastic Printwheels for:	List Price	MMM Price
Qume Printers	\$ 6.95	\$ 3.95
Diablo Printers	\$ 6.95	\$ 3.95
Wang Printers	\$ 7.95	\$ 4.95

GP Technologies Metalized Printwheels for:	List Price	MMM Price
Diablo Printers	\$59.95	\$39.95

GP Technologies Plastic Thimbles for:	List Price	MMM Price
NEC Printers	\$21.95	\$14.95

MINIMUM ORDER QUANTITY: 3 EACH TERMS: NET 30 F.O.B. Milwaukee



Accepted

Also inquire about our low-price ribbons and other computer supplies.



Media Management & Magnetics inc.

The Computer Supply People

CALL MARY ANN TO PLACE YOUR ORDER

1-800-558-6202

IN WI: 1-800-242-2090

4475-C North 124th Street
Brookfield, WI 53005

GET PUBLIC DOMAIN SOFTWARE!

HUNDREDS OF FREE PROGRAMS AVAILABLE TO COPY!

PUBLIC DOMAIN Software is not copyrighted so no fees to pay! Accounting, data-base, business, games, languages and utilities free for the taking! Some of these programs sold for hundreds of dollars before being placed in public domain. Join hundreds of users enjoying a wealth of inexpensive software. Copy yourself and save!

USER GROUP LIBRARIES

	Rent	Buy
IBMPC-SIG 1-370 Diskettes	\$400.00	\$800.00
IBMPC-BLUE 1-116 Diskettes	\$145.00	\$375.00
SIG/M UG 1-222 Diskettes	\$130.00	\$625.00
CP/M UG 1-92 Diskettes	\$ 45.00	\$250.00
PICO NET 1-34 Diskettes	\$ 25.00	\$100.00
KAYPRO UG 1-39 Diskettes	\$ 45.00	\$ 90.00
EPSON UG 1-39 Diskettes	\$ 45.00	\$ 90.00
COMMODORE CBM 1-28 Diskettes	\$ 25.00	\$ 65.00

Get a PD User Group Catalog Disk - \$5.00 PP - Specify Format!

Library rentals are for seven (7) days after receipt, three (3) more days grace to return. If you use your credit card - no disk deposit. Shipping, Handling and insurance \$9.50 per library. Call (619) 727-1015 for 3 min. recording. Call (619) 941-0925 orders and tech info.

NATIONAL PUBLIC DOMAIN SOFTWARE

1533 Avohill Drive, Vista, CA 92083





AVATAR SYSTEMS

The AVATAR Has Arrived. . . The AVATAR of IBM Compatible Computers.

Three AVATAR Systems computers to choose from:

AVATAR PCSX

IBM PC/XT Standard compatibility. 256K RAM, 135 Watt.

- Starter Kit with 1 disk drive & controller \$ 595
- The Home PC Complete with disk drive & TTL Amber monitor \$ 799

We configure to your specifications.

Systems Designers take note: The PCSX costs no more than many terminals.

Using AVATAR PC's in multi-user networks makes sense.

120 day warranty on the PCSX.

Word-processor, Games & other software included.

AVATAR PCFX

IBM PC/XT FAST compatibility. PCFX has 4.77 & 8 mhz clock. 60% Faster than IBM. Full 640K RAM on board.

- Business PC w/2 drives & TTL Amber Mon. w/Par Port \$1085
- Business RGB PC w/2 drives & 14" RGB Color Mon. w/Par Port \$1318
- Business PCX w/1 drive, TTL Amber Mon. & 20 meg hard-disk \$1585

Tell us how you want your PC configured!

1 Full year warranty on the PCFX.

Word-processor, Accounting & other software included.

Add \$25 to any PCSX or PCFX for 100 key 5151 style keyboard.

AVATAR AT+

IBM AT compatible. 640K RAM standard on board.

- Basic AT+ w/1 1.2 meg drive \$2256
- Professional AT+ w/1 1.2 meg dr & TTL Amber Mon \$2475
- Enhanced AT+ w/1 1.2 meg dr, TTL Amber Mon & 20 meg (32ms) HD \$3518
- Ultimate AT+ w/1 1.2 meg dr, 20 meg 32ms HD & Ser/Par & 16 color 640x400 Card & Princeton Graphics SR-12 monitor \$4660

Use an 85ms hard-disk in place of the 32ms and save \$325.

8mhz AT+ versions available. Call for special price.

Word-processor, Accounting & other software included.

AVATAR Systems builds its own computers and we only sell direct. "You get what you pay for." Believe it! You pay for a quality computer product and you get it. You do not pay for large corporate office buildings and hundreds of high paid managers and salesman. Simple economics.

AVATAR Systems is also your discount PC and add-on supplier:

Printers

Okidata, Toshiba, Citizen, NEC, Juki, Silver Reed & others

(Call for latest price on these and others not listed)

- Juki 6000 Daisy-wheel (\$295 list) \$ 199
- Star SG-10 120 cps dot-matrix (\$399 list) \$ 225
- Citizen MSP-10 160 cps dot-matrix (\$399 list) \$ 280
- Citizen MSP-15 160 cps dot-matrix (\$549 list) \$ 360
- Okidata 20 Color printer w/IBM print kit \$ 209
- Juki 6300 Daisy-wheel 40 cps (\$995 list) \$ 732
- Toshiba 351 200 cps dot matrix (\$1695 list) \$1185
- Parallel printer cable \$ 18

Monitors

- 12" Composite Green/Amber \$ 77/\$ 79
- 12" TTL Green/Amber (from the makers of IBM's) \$ 96/\$ 98
- 14" RGB .39 dot pitch 640x240 hi-res 16 color \$ 320
- 14" RGB .31 dot pitch 720x240 hi-res 16 color \$ 360
- 14" RGB Princeton Graphics SR-12 640x400 16 color \$ 575
- Color 400 Sigma Design 640x400x16 color board \$ 490
- Combo: PG SR-12 & Color 400 text & super hi-res in color \$1058



Add-ons

- 300/1200 baud modem plug-in card w/software \$ 195
- 10 meg XT hard-disk, full ht w/controller \$ 430
- 10 meg XT hard-disk, TEAC 1/2 ht w/controller \$ 485
- 20 meg XT hard-disk, Seagate 1/2 ht w/controller \$ 585
- 33 meg 1/2 ht Tulin w/controller \$ 935
- 10 meg removable hard-disk cartridge w/controller \$1235
- 10 meg cartridges for above \$ 105
- 20 meg fixed & 10 meg removable combo (full ht total) \$1695
- 20 meg AT hard-disk (32 ms) Seagate \$ 875
- 360K TEAC 55BV for PC/XT \$ 88
- I/O card (use w/640K RAM PCFX's) Ser/Par/Game/Clk \$ 138
- Floppy controller (PC/XT) \$ 55
- Mono-chrome adapter card w/parallel port \$ 108
- RGB color adapter w/ parallel port \$ 118
- RGB color adapter only \$ 108
- 135 watt power supply (PC/XT) \$ 97
- 84 key PC/XT style keyboard (5150 style) \$ 85
- 100 key enhanced keyboard for PC/XT (5151 style) \$ 125
- New: Professional 64 channel MIDI software/hardware interface for PC's. To 60,000 notes (list \$790) \$ 620
- 4-channel oscilloscope interface for PC. (500 khz) \$ 585
- VHS w/wireless remote. VT215T 3 speed 82 channel \$ 275

(Lots more. All PC parts. Call us for prices.)

Call us for our prices on software.

- LOTUS 1-2-3 \$ 280
- IBM's DisplayWriter \$ 185

Zenith, ITT's EXTRA, Wyse PC's, Altos, Tele-Video. Call for price.

We sell secretaries that sit on your lap.

Zenit's lap-portable 'secretary.' The Z-171 w/2 5 1/4" drives, 256K RAM (expandable to 1 meg), 25x80 LCD screen. (list \$2695). Under \$2000.

Call:

(213) 559-5350

AVATAR Systems: 3765 Watseka Ave. Suite 2 Los Angeles, CA 90034

TERMS: Most merchandise shipped UPS (ground). Shipping & COD charges extra. We accept checks (min. 10 day delay), certified checks or money orders. Sorry, no credit card orders at this time. No credit terms available. Prices and availability subject to change without notice. Ten day trial period granted on AVATAR computers. If not

satisfied with an AVATAR PC/XT or AT+ computer, return within 10 days for refund. (Trial offer subject to change. Restrictions do apply.) California residents add 6.5% sales tax. (IBM, PC/XT, & AT are trade marks of the IBM Corp.)

RUN CP/M80 ON IBM

If you have considered buying an IBM PC but are not sure of what to do with your present CP/M80 V2.2 software, your problem is solved. With MICRUN-CPM™ you can run CP/M80 software on any MS-DOS computer.

1. MICRUN-CPM is NOT an emulator it executes on NEC's V20 CPU
2. Cross-subdirectory operations
3. 16 logical/physical drives
4. Supports ADM3A, VT-52, H-19, Visual 210 ADDS Viewpoint, Hazeltine Espirit & 1510

\$145

Included in the above price are two utilities, disk file transfer and RS232 communication.



1-800-637-7226



Micro Interfaces Corporation
6824 N.W. 169th Street
Hialeah, Florida 33015
(305) 823-8088

Dealer Inquiries Invited

Trademarks: CP/M (Digital Research, Inc.), IBM (IBM Corp.)

AT/PC Compatibility Continued from page 55

level ramdisk, but the advantages over hard disks are slight, and the re-loading at bootup time is a pain.

All this will be less and less true. New specifications have been announced to take advantage of expanded ("paged" or "banked") memory and both software and hardware producers are rushing into the breach. Intel/Lotus and AST/Quadram have announced sets of standards and new products. Software publishers are promising upgrades and new releases that will utilize expanded memory, new versions of familiar software which will speed up all processing and remain transparent to users.

Intel's AboveBoard and AST's Rampage will be the first true expanded memory boards to hit the market. The former is already available, and the latter soon will be. But what about the software to take advantage of the vast new memory and speed? Lotus expects to have a version of Symphony ready before the end of August; and Framework will be released "in the third quarter," meaning by the end of September.

The new boards and software will primarily serve the PC/XT market, but will finally allow the AT to fulfill its great expectations. So, if its ex-

panded memory you need, by no means should you rush out and buy at AT. Your old PC/XTs will be the first beneficiaries, with the ATs trailing along.

Upward and Downward

Big Blue has not been entirely candid about AT floppy disk compatibility. At the IBM product centers, they are recommending that AT buyers install one standard 362K and one HD floppy drive, in addition to the hard disk. This they say achieves full upward and downward compatibility between all IBM-type disk formats. But this is hardly necessary and may be a White Elephant!

The reason I say this is there are simple tricks to make the AT HD drives fully compatible with 362K disks, both upward and downward, while retaining the considerable advantage of one or two 1.2M floppies. The secret is DISKCOPY. This standard DOS utility makes it possible to format 362K disks on an AT with one or two HD drives and no DSDD drives. DISKCOPY duplicates whatever format or data that is defined as the "source." If the source be a 40 track, 9 sector disk, it will be copied identically to the destination disk, even on HD drives. One can therefore use a blank formatted disk from a PC or XT as the source. The result: the destination disk will be similarly formatted.

To do this trick, one should get access to a PC or XT and format one blank disk with and one without the system files (the /s switch). Place a write protect tab on these. Upon

return to the AT, make a backup of these two disks by normal use of DISKCOPY.COM. That involves placing the DOS disk in drive A and typing:

A>diskcopy a: b:

Hitting the Enter key will load the utility and provide a dialogue for completing the operation. On a two drive AT, the destination disk, a blank ordinary cheap disk, should be placed in B drive. On a single drive system, the utility will prompt user to swap source and destination disks in the single floppy drive, until the formatting be completed. The model 362K disk will be copied exactly. Once formatted in this way, the HD drives of the AT will read and write to it perfectly. And the resulting disks will be perfectly readable in 48 TPI (tracks per inch) floppy drives such as are standard on the PC and XT.

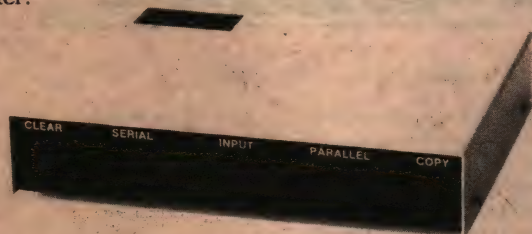
This is such a simple process, I am surprised that IBM did not mention it in the AT documentation. I have been performing this procedure for hundreds of disks, and have had no read/write errors, so I am convinced there is no inherent hardware reason to withhold this information from the public. I have been told that IBM decided not to publicize this feature because of "technical support" complications. It is enough, according to my informant, that IBM maintains its philosophy of upward compatibility; and that users refrain from moving data and software in the other direction, except by local area networks.

Continued on page 92

WAITING FOR YOUR PRINTER TO FINISH?

SLOW PRINTERS SLOW YOU DOWN!

That detailed spreadsheet, long letter-quality document, and extensive program listing usually take lots of time to print. Time which stops your PC COLD! Why wait for your slow printer?



\$239⁹⁵

Breakthrough Buffer Frees Your PC!

The NEW JFD Universal Print Buffer (64K) will free your PC while these LONG print jobs plug along. Simply install the JFD Buffer in-line between your PC and Printer (serial or parallel) and away you go. The JFD Buffer will transparently store your document (at PC Speed!) while your printer catches up. A typical 5 page document will be in the JFD Buffer (& out of your PC) after your printer finishes the first half of page one!

Any Computer, Any Printer!

The JFD Buffer will accept ANY Serial (DB-25) or Parallel (Centronics) input & output. Automatic data conversion (Serial to Parallel & vice versa) is STANDARD. ALL configurations supported (IBM, Apple, Whatever)! Push-button CLEAR & COPY switches included, too.

All these features, Super Low Price

Other buffers with these features cost from \$350.00 and up. But now Tipz offers this quality Buffer & Data Converter direct for only \$239.95. The unit comes complete and is backed by a 15 day money back guarantee!

Product #2170 \$4.50 Shipping & Handling
Measures: 9.4"W x 4.2"D x 1.5"H

TO ORDER

Simply Call 1-800-TO-ASK-US (Calif. 415/567-4067) 24 hours! Call or Write **Tipz Direct, Inc.** Specify product number, quantity, & payment info (Visa, M/C, or M.O.). Include name, address, area code, & phone. Orders are shipped within 48 hours via UPS.

CA Residents Add 6.5% Tax.

15 Day Money Back Guarantee

© Tipz Direct, Inc.

Tipz, P.O. Box 690, San Francisco, CA 94101-0690

Tipz

CSM-125

LOW LOW LOW PRICES DYNAMIC RAMS

256K
64K
120, 150, 200 NS
128K

Single Chip
Non Piggyback
120NS
8000
Series
TTL, LS

Parts Available
Call For Daily
Pricing

Sheila, Don
Delta Lu
Electronics

(213) 924-1701

Min Order
\$50 & Up

It's Easy Continued from page 56

used a microcomputer before and one that uses micros strictly as an executive tool. It was the latter that submitted his comments in this article.

What we both discovered was an incredibly easy to use, powerful integrated package. I personally feel that an IBM XT running with Sidekick and ABILITY would satisfy almost 100% of its user's needs.

The spreadsheet, database, and communications programs were as powerful as other stand alone programs currently on the market. The graphics section enables the business user to make all sorts of charts and graphs effortlessly and then append them into a word processing file.

The only negative comment my associate lodged against ABILITY was its lack of Calendar or Scheduler (present in Sidekick). I look upon that more as a constructive criticism, however.

I, on the other hand, do have one minor complaint, and that deals with the word processing facility. It simply isn't as powerful as other stand alone programs like Wordstar. Our inability to double space our documents and the "menu-only" approach to formatting commands results in a better note taker than full-fledged word processor.

Even the neophyte to personal computers shortly expressed exasperation when reformatting a long document. On the other hand, no word processor lets you incorporate graphs and text into a single document. Overall, however, the word processing capability is very good.

ABILITY is the first large integrated package to come with a small cover; documentation is short but to the point. Not much is needed, though, as ABILITY is so easy to master in a matter of a few hours.

Overall, ABILITY is an excellent package and I highly recommend it!

**WE
ARE
RAM
TOUGH**

256K • 150ns \$4.45
64K • 150ns \$.79

(200 pc. min.)

OEM • WHOLESALE • RETAIL

Lowest Price—Call For Substantial Quantity Discounts
LOOK AT SOME OF OUR PAST AND PRESENT CUSTOMERS

COMPUTERLAND • COMPUTERMART • ENTRE COMPUTER CTRS • UNIV. OF N. IOWA
 • FORD MOTOR CO. • GTE COMMUNICATIONS • UNIV. OF ARKANSAS • UNIV. OF TENNESSEE
 • SMITH COLLEGE • MAGNAVOX • SLIPPERY ROCK UNIVERSITY • CULLINET SOFTWARE
 • BOSTON COMPUTER SOCIETY • MANY MANY OTHERS

MEMORY CHIPS

	1	200	1000
4164-150/200ns 64K DRAM	\$1.39	.79	.70
40128-150/200ns 128K DRAM (FOR IBM AT) ..	\$6.00	CALL	CALL
41256-150/200ns 256K DRAM	\$4.45	4.40	4.00

FLOPPY DISK DRIVES

	1	2	10
Panasonic JA551-2 1/2 High, DSDD	\$ 99.00	99.00	99.00
Teac 55B 1/2 High, DSDD	\$ 99.00	99.00	99.00
Mitsubishi M4853 1MB, 96tpi	\$ 99.00	99.00	99.00
Tandon TM100-2	\$ 99.00	99.00	99.00

HARD DISK DRIVES FOR PC

	1	2	10
10MB HD With Controller	\$499.00	495.00	489.00
20MB HD With Controller	\$699.00	689.00	679.00

HARD DISC DRIVES FOR A.T.

	1	2	10
22 MEG CMI 6426 (USED BY IBM)	850.00	825.00	785.00
33 MEG CMI 6640 (USED BY IBM)	1250.00	1150.00	1095.00

	1	2	10
IBM PC/XT/AT		CALL	

DEALERS...CALL**MICROTEK, INC.**

26541 Baldwin Road • Dearborn Heights, Michigan 48127

(313) 422-6000**OUR REFERENCES**

1. National Bank of Detroit
2. Better Business Bureau
3. Dun & Bradstreet

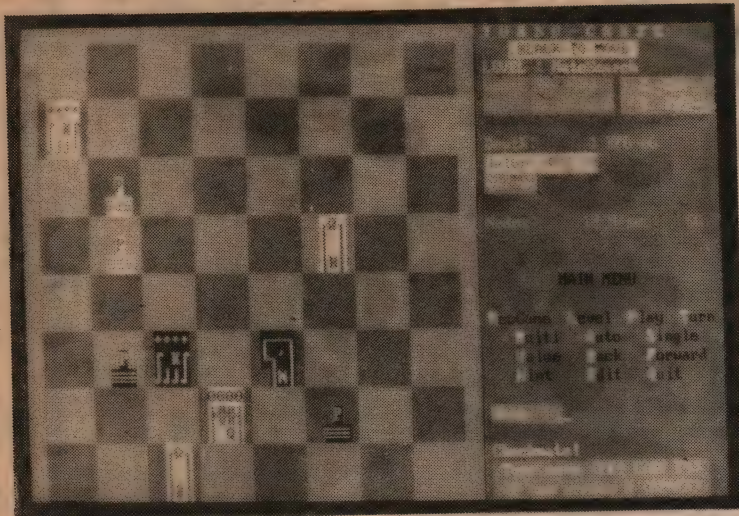
Same Day Shipping (Usually)
 Add \$3.50 for shipping.
 Over 1 lb. may require more
 Add 3% for Credit Cards

—Quantity Discounts Available—
 UPS Cash COD - Credit Cards
 All New, Quality, Low Prices
 Prices Subject to Change

VISA



Turbo Gameworks First Borland "Games" Software, Includes Source Code



Borland International Inc. introduced the newest addition to its Turbo Pascal Family, called Turbo Gameworks. Although it includes chess, bridge and gomoku, this is much more than a games package; it's also a development package for Turbo Pascal programmers who would like to develop or customize their own games programs and explore games theory.

According to Philippe Kahn, Borland's president, "Our new Turbo Gameworks is the only package of its kind on the market. We're the first company to provide customers with the source code for a games package. Gameworks also includes lessons in computer games theory, so users can build their own games packages."

Turbo Gameworks contains step-by-step instructions on how computer games are written, and provides the user with all the information needed to begin customizing and writing original games using Turbo Pascal. The package contains three complete games accompanied by graphics that turn the user's computer screen into a chess board, bridge card table or gomoku matrix. The package also provides users with the source code and guidelines used by programmers who have traditionally developed games for the computer games industry. Similar to other Turbo Family members, users can incorporate Turbo Gameworks procedures into their own programs — for commercial purposes — without the require-

ment of payments to Borland.

Gameworks Plays Chess

The Chess portion of Turbo Gameworks allows the user to play chess at six different levels. Gameworks provides users with hints for making their next move, and they can switch sides of the board with the computer at any time. The game also has an edit mode that enables the user to set up specific positions on the playing board. The MultiMove command allows the user to make moves for both sides of the game, and the Singlestep command displays an on-screen analysis of each move as it's made.

According to George Koltanowski, the Dean of American Chess, former president of the United States Chess Federation and syndicated chess columnist, "In addition to playing chess at any level you wish, Turbo Gameworks has many features not found in other computer chess games. What impressed me the most was the fact that with this program you can become a computer chess analyst. You can add new variations to the program at any time and make the program play stronger and stronger chess. There's no limit to the fun and enjoyment of playing Turbo Gameworks, and most important of all, with Turbo Chess there's no limit to how it can help you improve your game."

Gameworks Plays Bridge

In Bridge, two players can play against each other or against the computer, or the computer can play 0, 1, 2, 3 or 4 hands. All of the hands are displayed on the computer screen, and the computer even asks if it's allowed to "cheat" — if the user responds "yes," the computer will look at the other players' hands. Turbo Bridge automatically bids and plays its own hands.

Gameworks Plays Gomoku

Gomoku, an ancient Japanese game, is played on a matrix of squares, 19 columns by 19 rows. Two players take turns strategically placing crosses on empty squares and the first player to get five in a row — horizontally, vertically or diagonally — wins. The user can go first or allow the computer to place the first cross, and the user can receive hints from the computer or change places with it at any time during the game. Turbo

IBM-PC 9 TRACK TAPE DRIVES

EXCHANGE DATA WITH MINIS & MAIN FRAMES

- DATA COLLECTION
- DATA REDUCTION
- MAILING LISTS
- GOV'T TAPES
- DISK BACKUP



- LANDSAT
- SEASAT
- REAL ESTATE
- CENSUS
- FAA

EXPAND YOUR IBM-PC TO READ/WRITE 9-TRACK MAG TAPES IN STANDARD ANSI-IBM 800 BPI (NRZI) FORMAT

- 800 BPI NRZI DRIVES WITH CONTROLLER AND SOFTWARE From \$1500
- Controller and Software Alone \$1100

Request Full Brochure

ELECTROVALUE INDUSTRIAL INC.

P.O. BOX 376-CBS
MORRIS PLAINS, NJ 07950



201/267-1117

CLOCK 49⁹⁵

HYPER-CLOCK by HYPERmicro

- Battery powered clock/calendar board for IBM PC, XT, portable and ALL compatibles (even TI Pro & Tandy 1000)
- Never enter time and date again. HYPER-CLOCK automatically loads time and date for you.
- Only 4 3/4" (119mm) long. Fits smallest slot in any computer.
- Plugs into PC buss, does **not** require modification to mother board.
- The only enhancement board you use every time you boot your computer.
- **DON'T BE WITHOUT THIS ESSENTIAL FEATURE.**

For a limited time HYPER-CLOCK comes with BELL'SOFT'S Pop-Up AlarmClock

- Also included 29 Public Domain Programs

\$49.95 + \$3 Shipping & Handling

Send check or Money Order to:

HYPERmicro

2308 - 4th Ave. Seattle, WA 98121
"FOR SAME DAY SHIPMENT" Call us direct

9:30 - 5:30 Pacific Time 1-800-521-0714 ext. 323. Washington State 441-9814
24 HOUR "ORDER ONLY" 1-800-626-4444

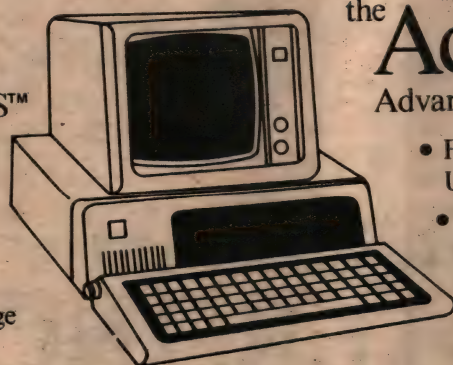
CP/EM™

CP/M™ 80 Emulation for MS-DOS™

- Z80 Emulation
- CP/M Version 2.2 Compatible
- Accelerator Compatible
- Serial Program Utilities Included
- FAST-Written in Assembly Language

\$79.95

the
ICU
group
Intelligent
computer
users



the Accelerator™

Advanced CPU for the IBM PC

- Faster Program Execution Up to 30%, 50% and more!
- Full 8088/6 Compatibility
- Extended Instruction Set
- 8 Bit and 16 Bit Bus Versions Available

\$49.95*

*5 MHZ for the IBM PC



Dealer inquiries welcome.

The Intelligent Computer Users Group
P.O. Box 10118 • Rochester, NY 14610
(716) 425-2519

IBM is a trademark of International Business Machines.
MS-DOS is a trademark of Microsoft Corporation.
CP/M is a trademark of Digital Research Incorporated.

Continued on page 93

VIDEO
ALSO**Electrified**AUDIO
ALSOWE WILL TRY TO BEAT ANY PRICE ON ANYTHING FROM ANYWHERE!!!
WE WILL TRY TO BEAT ANY PRICE ON ANYTHING FROM ANYWHERE!!!**BOARDS AND
HARD DRIVES****IBM COMPATIBLE ENHANCEMENTS**

	Your Cost Single Unit	Quantity Cost
Multifunction Card (384k Capacity, SP, PP, Clock-Game)	\$139.00	Call
Mono Graphics Card with PP Color Graphics Card (RGB or Composite)	\$129.00	Call
Monochrome Card	\$99.00	Call
512k Memory RAM Card (0 k)	\$79.00	Call
256k Memory RAM Card (0 k)	\$69.00	Call
Power Supply 130 Watts	\$89.00	Call
Disk Controller Card	\$69.00	Call
Computer Case	\$69.00	Call
Serial Printer Card	\$49.00	Call
Parallel Printer Card	\$39.00	Call

AST	YOUR COST	DESCRIPTION
Six Pack Plus	229	64K-PP-SP-CLK
HERCULES		
100	289	PC Graphics Board
Color Card	149	Color Card for PC, PP
QUADRAM		(PC Enhancements)
QuadBdl4064	289	2 SP, CLK, 64K, SFWR
Quad 512	229	#6064 64K, SP, SFWR, EXP 512K
QB 5310	199	PP, SP, CLK, GamePort, SFWR
Quadcolor	189	Video card for HR
Quadcolor	169	W/Quad I Gives 640X200 RES
S.T.B.		(IBM PC Peripherals)
Graphix II+	249	GPH, PP, RGB, RAM Disk
Mono +	179	MON Adaptor
Rio +	219	64K, PP, RS-232C, CLK, Game
Super Rio	299	64K, PP, 2-232C, CLK, RAM Disk

CALL FOR PRICING ON ALL OTHER QUADRAM PRODUCTS!!

CALL FOR PRICING ON ALL OTHER S.T.B. PRODUCTS!!

TECMAR	(I.B.M. PC Peripherals)
Captain	199
20037	449

CALL FOR PRICING ON ALL OTHER TECMAR PRODUCTS!!

HARD DRIVES	
IONEGA	Hard Disk Drive
M-10	1829 10MG - Single Removable
M-20	2449 Dual Removable
TALLGRASS	Hard Disk Drive with Tape Backup
TG-5025	2549 25MG with 60 MB Tape
TG-6180	5295 80MG with 60 MB Tape

CALL FOR PRICING ON ALL TALLGRASS PRODUCTS

COMPUTERS

APPLE	YOUR COST
IIE	\$795.00
IIE-Pro	CALL
IIC-With Monitor	CALL
MACINTOSH	CALL
FAT-MAC	CALL
10 MG Hard Drive	\$895.00
Apple Compatible Drive	\$129.00
Parallel Card	\$69.00
Serial Card	\$79.00
Extended 80 Col. Card	\$99.00

AT&T-CALL FOR THE LOWEST POSSIBLE PRICE!

COMPAQ

Compaq-Portable	CALL
Compaq-Plus	CALL
Desk Pro Series	CALL

COLUMBIA

VP-Portable — SPECIAL — SPECIAL!! \$1295.00

Model-Desktop	CALL
Model-10 MG. Hard Drive	\$2295.00

\$3,000. of Software FREE with any Columbia — *BEST BUY*!

COMPURO-CALL FOR LOWEST POSSIBLE PRICE!

CORONA

PC-22	CALL
PC-HD-2	CALL
PPC-22-Portable	\$1395.00
PPC-XT-Portable	\$1995.00

IBM

PC-256K-2 Drive	LOWEST POSSIBLE
PC-XT-256K	PRICES
PC-AT	CALL

ITT-CALL FOR THE LOWEST POSSIBLE PRICE!

SANYO

555-2	\$869.00
775-Portable	\$1679.00

PRINTERS

	YOUR COST	OKIDATA	YOUR COST
AMDEK		92-	\$349.00
5025	\$509.00	93-	\$509.00
5040	\$869	192-NEW	\$349.00
5055	\$1219	193-NEW	\$499.00
BROTHER		84-	\$639.00
HR-15	\$379.00	2410-	Call for Lowest Price
HR-25	CALL	PANASONIC	
HR-35	CALL	1090-	\$189.00
CITIZEN		*SUPER SPECIAL*	
MSP-10	279 10"-160cps-40cps	1091-	\$239.00
MSP-15	389 15"-160cps-40cps	1092-	\$349.00
MSP-20	389 10"-200cps-50cps-8K Buffer	1093-	\$469.00
MSP-25	495 15"-200cps-50cps-8K Buffer	QUME	
DAISYWRITER		20P-	\$449.00
2000	\$749.00	11/40-	\$1239.00
DATASOUTH		11/55-	\$1295.00
DS-180-	\$1149.00	SILVERREED	
DS-220-	\$1349.00	500-	\$269.00
DIABLO		550-	\$385.00
D25-	\$529.00	770-	\$669.00
620-	\$789.00	STAR	
630-	\$1539.00	SG-10-	CALL
630ECS-	\$1695.00	SG-15-	CALL
630KSR-	\$2479.00	SD-10-	CALL
EPSON		SD-15-	CALL
FX-85	CALL	SR-10-	CALL
FX-185	CALL	SR-15-	\$599.00
LQ-1500	CALL	SB-10-	\$559.00
JX-80	CALL	TEXAS INSTRUMENTS	
GENICOM		TI-855-	\$775.00
LOWEST PRICES	CALL	TOSHIBA	
JUKI		1340-	\$589.00
6100-	\$369.00	1351-	\$1095.00
MANHESMANN TALLY		1350-	\$1519.00
Spirit-	\$249.00	P-351-	\$1095.00
MT-85-	CALL	TRANSTAR	
MT-86	CALL	120P-Special	\$309.00
NEC		130P-Special	\$399.00
2000/10/15/30-	\$639.00	140S-Special	\$695.00
2050-	\$699.00	T-315-	\$395.00
3510/Special	\$899.00		
3520/25/30/50	\$1095.00		
7710/Special	\$1095.00		
8810-	\$1449.00		

*** COMPUTER PRODUCTS LISTING *****COMPUTERS**

ACORN
ALDOS
APPLE
AT&T
BASIC-TIME-AT
COLUMBIA
COMMODORE
COMPAQ
COMPUCORP
CORONA
COMPURO
CORVUS
DEC
EAGLE
ITT
IBM
KAYPRO
LEADING EDGE
MOLECULAR
N.E.C.
NORTH STAR
PANASONIC
PHILIPS
PIED PIPER
SANYO
SEEQUA
SEIKO
SPERRY
TELEVIDEO
TOSHIBA
WYSE
ZENITH

TERMINALS

ADDS • ALTOS
AMPEX
ANN ARBOR
ARROW
BEEHIVE
CIE
COMPUTER HARDWARE
DAVONG • DEC
ESPIRIT • EXECUPORT
HAZELTINE
ISC COLOR GRAPHICS
KIMTRON
LEAR SIEGLER
LIBERTY
MICROTERM
MOLECULAR
NEC
NORTH STAR
OSM
QUAZON
QUINT
QUME
SIERRA
TATUNG • TELETEK
TELEVIDEO
VISUAL-TECH
WYSE

MONITORS

AMDEK
BMC
C-ITON • COMREX
ELECTROHOME
GORILLA
KIMTRON
NEC
NORTH STAR
PANASONIC
PHILIPS
PRINCETON GRAPHICS
QUADRAM
ROLAND
SAKATA
SANYO
SMD
TATUNG
TAXAN
XTRON
ZENITH

PRINTERS

AMDEK • ANADEX
BMC
BROTHER
CARDICO • CIE
CENTRONIX
CITIZEN
C-ITON • CORONA
DAISY WRITER
DATA PRODUCTS
DATA SOUTH
DATA TERMINALS
DEC
DIABLO
DTC
EPSON
FLORIDA DATA
FUJITSU
GENIUM • GENICOM
IDE
INTEGRAL
DATA SYSTEM
JUKI
LEGEND
MANHESMANN TALLY
NEC
NORTHERN TELECOM
OKIDATA
OLYMPIA
PACEMARK
PANASONIC
PRINTK
PRINTRONICS
PRISM
QUADRAM • QUANTEK
QUME
RADIO SHACK
RICOH
RITEMAN
SANYO • SIEMENS
SILVER REED
SMITH CORONA
STAR
TELEK • TELEVIDEO
TEXAS INSTRUMENTS
TOSHIBA
TRANSTAR
TTX

**DISC DRIVES &
HARD DRIVES**

ALLOY
ALTOS
AMDEK
APPARAT
APPLE
BERMOULLI BOX
CAMEO • CIPHER • C D C
COMPURO
COMPUTER INNOVATIONS
CONCORDE
CORONA •
CORVUS
DATAFILE
DATAMAG
GREAT LAKE
IDE • INDUS
INTERFACE • IOMEGA
IRMA
MAYNARD
MICROMATE
MICRO SCI
MITSUBISHI
MOUNTAIN • MSD
NEC
PANASONIC • PEGASUS
PERCOM
PERIPHERAL MARKETING INC
PRAGMATIC DESIGN
QUADRAM
QUANTUM
RACORE • RADIO SHACK
RAVA
RODINE
SAMSON
SANYO
SHUGART
SYSGEN
TALLGRASS TECHNOLOGIES
TANDEM
TEAC
TECMAR
THOUGHT WORKS
TRAK
TRANTRON
VISTA
X-COMP

**COMPUTER CARDS OR
ADD-ONS**

ADVANCE LOGIC SYSTEMS
AMDEK
AST
CALIFORNIA COMPUTER PRODUCTS
CARDICO
DCA
HERCULES
IDE • INTEC
INTERACTIVE STRUCTURES
JAGUAR
M.A. SYSTEMS
MEGALITHICS • MICROLOG
MICROTEK • MPC
ORANGE-MICRO • PARADISE
PERSONAL COMPUTER PRODUCTS
PERSYST PRODUCTS
PLANTRONICS
QUADRAM
STB • TALLGRASS TECHNOLOGIES
TECH DESIGNS
TECMAR
TITAN SYSTEMS
TYMAC

MODEMS

ANCHOR AUTOMATION • AST
ANDERSON JACOBSON
BIZCOMP
CEMETEK • CODE-A-PHONE
DATEC
GENERAL DATACOM
HAYES • IDE
INFORTRON
KENSINGTON • LEXICON
MICROCOM
MULTITECH
NORTHERN TELECOM
NOVATION
PARADYNE • POPCOM
PRENTICE
QUADRAM
RACAL/VADIC
RISON
SSM
TECMAR • TRANSEWD
US ROBOTICS • VENEL

SOFTWARE SUPER SALE!!

BRAND NEW FACTORY SEALED SOFTWARE

RUNS ON IBM OR IBM COMPATIBLES

ORIGINAL VALUE OVER \$3000.00 OF SOFTWARE

YOU GET:

- Perfect Writer (Word Processor)
- Perfect Speller (Spell Checker)
- Perfect Calc (Spreadsheet)
- Perfect Filer (Data Base Manager)
- Fast Graphs by Innovative (Color Reports)
- Home Accountant Plus by Continental
- Asynchronous Communications
- Space Commanders
- Macro 86 by Microsoft
- GW Basic/Basic A
- MS/DOS 1.25

YOUR COST:

\$249.95

Limited Quantities!!

HURRY!!

AMAZING!!

(Basic May Not Run On All Computers)
(CDP - Perfect Series - Version 1.0)

WE WILL SAVE YOU MONEY!

996 ORANGE AVE.
P.O. BOX 151
WEST HAVEN CT 06516**Electrified
Discounters****(203) 937-0106**DEALER INQUIRIES
INVITED\$2 refund on all
telephone orders over \$100All Prices Listed are Cash Discounted. Add
2% for MasterCard or Visa. Not Responsible
for Typographical Errors. Prices are Subject
to change Without Notice. Cash Residents
Add 7 1/2% sales tax.
IBM is a registered trademark of International
Business Machines Corp.

AT/PC Compatibility Continued from page 88

I have been using ATs in conjunction with PCs for several months now, and find the DISKCOPY trick invaluable. For one thing, it avoids the fallacy of installing two different kinds of floppy drives on the same machine. The second HD drive costs lit-

tle more than the DSDD drive and is so much more convenient. For another thing, it greatly simplifies backing up both hard disk and floppy data. Megadensity floppy drives run quietly and operate with remarkable speed.

Other copying programs can be substituted for DISKCOPY; for example, COPYIPC.EXE works beautifully to achieve

the same effect, not only for backing up protected 362K software disks on the AT, but also as a way of formatting PC and XT disks as described above.

Software Compatibility

If you are about to purchase new games to run on the AT, be sure to have the salesman test their compatibility. Slightly more than half tested by me failed to run on the AT.

The following will run on the AT (at about twice the normal speed, which makes them very exciting): all the InfoCom games (providing no more than 512K memory be installed), and most of the Adventure-type games; of the arcade-type games, Bluebush Chess, Backgammon, Centipede, Cosmic Crusader, Dig Doug, Donkey Kong, Floppy Frenzy, Friendly Games, Fuzzy Worm, Gato, Jumpman, Space Strike, King's Quest, Knoware, Munchman, Nightstalker, Pacman, PC Golf, Pool, Rogue, Shamus,

Space Commanders, Solitaire, Stargate, Zaxxon.

The following will NOT run on the AT: Apple Panic, Battle Zone, Big Top, Bricks, Burger Time, Cross Fire, Czorian Siege, Decathlon, Evolution, Fraction Fever, Flight Simulator I and II, Frantic, Frogger, IBM Strategy Games, J-Bird, Joust, KO Boxing, Lodestar, Night Mission, Obliette, Paratrooper, PC Arcade, Robotron, Serpentine, Ships Ahoy, Snipes, Spelicopter, Styx, Tapper.

Most PC/XT productivity software will run on the AT. For those few programs that do not, estimated about 20 percent, upgraded versions are appearing every day. Framework 1.0 will not run, but the new 1.1 version will. DBaseIII 1.0 will run, but some screen displays are disarranged. DBaseIII 1.1 solves the problem. I have tested about 100 programs, and about 80 percent will run on the AT. The best policy is Caveat Emptor!

Sidekick will unfortunately not run on the AT. I miss it desperately. Spotlight takes up too much memory and does not really fill the void. Borland, get on it!

Conclusions

In jumping the gun on the AT, IBM was letting the world know that it was not resting on its laurels, but instead was seizing the initiative for the next generation of micro technology. Never again would it make the error of over-success, as was done with the Selectric typewriter, ignoring microcomputer and electronic developments and sticking with mechanical devices until long after market interest had faded. Yet, even late in the field, the PC saved the day.

One thing can be said about the older IBM models, they were not original in any respect! The remarkable success of the PC/XT was based on a completely different approach: find the mainstream of the existing market and capitalize upon it. Somehow, it worked magnificently. Perhaps, the free-for-all donnybrook of startup companies entering the vacuum, each dedicated to proprietary marketing, had created a situation that craved a statesman and a leader. IBM was forced to adopt a mainstream "state of the art" policy, because of its tardiness in entering the fray. But this policy proved to be exactly what was needed to bring order to the chaos and to teach everyone that proprietary lock-in marketing was doomed.

The AT is a remarkable machine. The name of the product betrays the motivation. (Some wags suggest, the name was intended also as a taunt to AT&T!) But its troubled history suggests that IBM had abandoned its creed that only solidly tested and reliable equipment will be announced and marketed. It appears that IBM has begun to wildcat and hype its products before they are really ready for the average user. This approach has long been characteristic of IBM in other areas of technology. Witness the charges along these lines in various recent anti-trust suits (now settled out-of-court or dropped). But IBM hurts itself more than it does the competition. Having emerged as preeminent in the microcomputer market, a continued statesmanship-like demeanor might be better for everyone concerned.

WHY FIGHT IT? ...SWITCH!

THAT'S RIGHT — Why fight twisted cables and hidden connectors any longer when a TABCo Switch can fix the problem forever!

SR-1 Serial A/B switch with a switchable, Null Modem Adapter and two, six foot cables built in. Lines 2-6, 8, 20 & 22 are switched. Top quality material and workmanship make this a super buy. **ONLY \$79.95**



Model PSM-2C/P makes connecting two computers to a single parallel printer a snap! Just plug in your existing printer cables to the switchbox and connect the built-in six foot cable to your parallel printer and you're set. Order today.

NEW Low Price!
\$99.95



User our PSM-C/2P switchbox to connect two parallel printers to your computer in a flash. The switch has two, built-in 3.5 foot cables and a receptacle to plug in your existing printer cable. It's complete - Nothing else to buy! Thousands sold —

ONLY \$69.95

All TABCo Switches are built using gold plated cable connectors, hand soldered cable termination connectors and glass epoxy circuit board. No edge connectors are used. These features enable us to give a Full One Year Limited Warranty on all of our switches and a money back guarantee if not fully satisfied.

Check with your favorite computer store or call for the name of your closest dealer.

Other models available.
Dealer inquiries invited.
\$2.50 Shipping/Handling.
Florida residents add 5% sales tax.

TABCO.

704 W. Michigan Ave. P.O. Box 8098
Pensacola, FL 32505 Florida 904/438-6507
OUR TOLL FREE NO. IS
1-800-874-1551



K-QUAL SYSTEMS CONSULTING

71 Archwood Avenue
Staten Island, New York 10312
(718) 948-0266

TURBO PASCAL FIXED DISK MENU SYSTEM

Organize executable programs and batch files into easy to use Menu Windows. Execute any program or batch file, from fixed or floppy disk, with as few as two keystrokes. Optionally password protect any program and access to DOS services. Interactive DOS command interface with on-screen tutorial. Store, then execute, multiple commands, or save them in a DOS batch file. Analyze hardware configuration and available disk space. Complete documentation included.

MENU MANAGER: Compiled Version \$49.95
With Source Code* \$69.95

Add password protection when booting from fixed or floppy disk.

SECURITY PLUS: Compiled Version \$29.95
— SAVE \$19.95 —

MENU MANAGER and SECURITY PLUS: \$59.95
With Source Code* \$79.95

* Requires TURBO TOOLBOX from Borland International (not included)
Add \$3 shipping/handling on all orders. (Outside U.S. \$6)
New York Residents add appropriate sales tax.

For The IBM PC (with fixed disk), XT, AT, or Compatibles
Requires PC-DOS 2.0, 2.1, 3.0, 3.1, MS-DOS 2.11, 2.12

Great Software At A Great Price!
An Automatic Print Spooler
For Only
\$12.95

Spool-Aid

**Allows you to print and work
at the same time! Spool-Aid
will work with almost any
software package or language.
No hardware modifications
needed and it's easy to use!**

For I.B.M. Pc's and all Pc Compatibles

Send Check or Money Order to:
A. F. M. Company
1978 Western Charm Drive
Riverton, Utah 84065 U.S.A.

UNUOV 340-03

Telcomm Software
ARTISOFT, Inc
602-327-4305

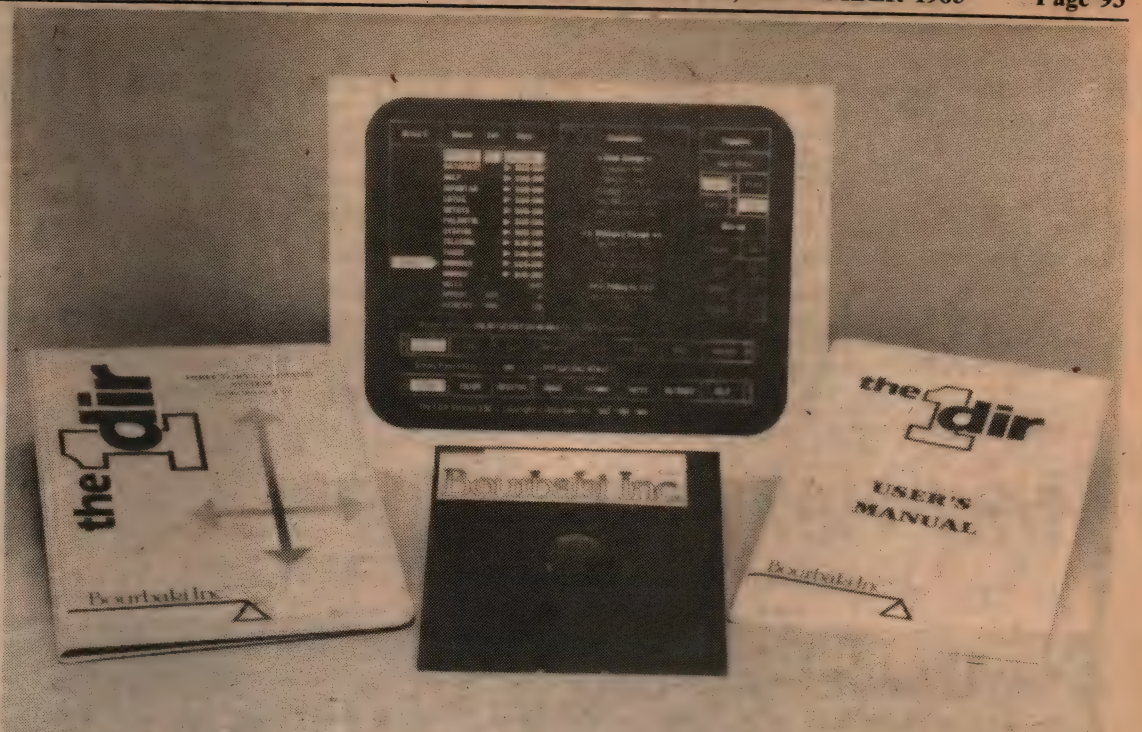
New 1 dir Version 3.5 Adds Expanded Menus, Macro Capability

Bourbaki, Inc., of Boise, Idaho, now adds new features to the latest version of their unique "DOS helper" utility for IBM PC, XT, AT, 3270, PCjr, or compatible systems. Now single-keystroke access to applications and *Batch-Builder* command sequence capture capabilities join the battery of commands and functions that are point-and-shoot quick to accomplish with this utility. 1 dir Version 3.5 is available for

\$95 (suggested US resale) at participating Bourbaki dealers; dealer inquiries are invited.

1 dir replaces the DOS prompt (A> or C>) with a full screen of information, including a sorted list of files in the current directory, a system status billboard, a menu of available commands (or applications or other menus) and more. It makes novel use of the computer's cursor-control keys; up-down keys point to files on the (scrollable) directory list, left-right keys point to functions to accomplish (either on the indicated file or, as in the

Continued on page 94



Turbo Gameworks Continued from page 90

Gomoku can also be made to play against itself.

The complete Turbo Gameworks manual guides the user through each game and its program design. Users will learn general problem analysis, procedures for testing basic strategies and a way to rate the different options available at each move. Then, the user will learn how to develop basic algorithms, identify all possible moves, do incremental updating for speed and efficiency and learn top-down program design using constants and data structures.

Turbo Gameworks, which will be available beginning October 15, 1985, has a suggested retail price of \$69.95 and is not copy-protected. All Turbo Pascal products are compatible with the IBM PC Family of computers and true compatibles. Borland's products are available direct from the company or through major distributors and dealers worldwide, call 800/556-2283 with dealer inquiries. Direct orders, call 800/255-8008; or in California, 800/742-1133. For more information, contact Borland International, 4585 Scotts Valley Drive, Scotts Valley, CA 95066. Telephone 408/438-8400.

Mention the you read about it in *Computer Shopper*.

STATGRAPHICS®

AT LAST! Powerful, full range statistical and mathematical software. OVER 250 FUNCTIONS. ANOVA, Time series analysis, Regressions, Forecasting and Comprehensive analysis.

DESIGNED for: QA/QC Engineers, Data Analysts, Researchers and Statisticians.

HIGH Resolution, Color, 3-D Graphics for IBM-PC and compatibles. Complete 670 page manual, Tutorial and Sample analysis programs.

Complete package...\$695.00

-APL*PLUS® products also-

COMPOSITION ENG., INC.

255 East Dr., Suite E

Melbourne, FL 32901

(305) 729-8366 *STSC, Inc. PlusWare

IBM REPAIR

Component level repair for all IBM PC/XT Computers

DISK DRIVE ALIGN

5-1/4" Floppy

Double Sided—Double Density

\$40

IBM KEYBOARD

&

POWER SUPPLY

\$60.00 & Parts

IBM PC MOTHER BOARD

\$75.00

& Parts

EXPANSION CARDS

CALL FOR PRICES



3100 PROCTOR STREET
SUITE 111
DULUTH, GEORGIA 30136

CONTACT: RANDY MCDANIEL
404-476-0552

QUICK
TURNAROUND

SEDUCTION...

It's everything you've dreamed of.
It's beyond what you'd expect.

ATARI 400/800/1200 (48K)

SANYO 550 SERIES (256K)

IBM-PC/IBM-PCjr (128K) *

\$36.95

* IBM COLOR GRAPHICS ADAPTER.
ONE (1) DISK DRIVE REQUIRED.

ADULT VIDEO GAMES, STE 637

7325 1/2 RESEDA BOULEVARD

RESEDA, CALIFORNIA. 91335

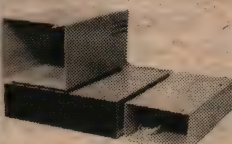
X-RATED

for PC jr. DISK DRIVES WITH CONTROLLER

\$299 **SAVE!**

5 1/4" DISK DRIVE CASES w/Power
SINGLE 1/2 Ht Cases w/Power.. \$44.95
DUAL 1/2 Ht Cases w/Power.. \$55.95
HARD DISK Single w/Power \$99.95
SINGLE 1/2 Ht Case Only \$19.95
DUAL 1/2 Ht Case Only \$29.95

5 1/4" DISK DRIVE CASES W/POWER SUPPLIES



- Cases accommodate all standard 5 1/4" drives
- New chip resistant finish
- Over current and over voltage protection
- Dealer inquiries invited
- Call or write for quantity discounts
- Guaranteed in writing for 120 days

Dual Power Supplies

- Horizontal - 12x12 1/2 \$69.95
- Vertical - 7x12x6 \$69.95
- Single Horiz. P/S - 6x12x3 1/2 \$44.95
- 2-Drive Cable \$21.00
- 4-Drive Cable \$32.00
- Dual Case, Horiz. or Vert. (W/O P/S) \$29.95
- Single Case, Horiz. (w/o P/S) \$21.95

NEC AUTHENTIC 15LQ

DAISY WHEEL PRINTER
SUPERB PRINT

\$199

PRINTERS

STAR SG10 \$230 SG10C \$269
SD10 CALL SD15 CALL
NEC PRINTERS CALL SR10 CALL SR15 CALL
LEGEND PRINTERS With Lifetime Wty on Head: CALL
MS-DOS & CP/M PRINTER DRIVER \$14.95
AUTOMATIC PRINTER SHARING SWITCHERS:
PRINTER CONTROL \$99.95
SOFTWARE CONTROL \$149.95

COMPUTERS

NEC 8801 \$995
EAGLE PC ... \$1200
COMPUPRO .. CALL

ACTRIX PORTABLE CP/M & MS-DOS
Built-In Printer, 2 Modems \$1895

PRICES MAY BE LOWER AT TIME OF PUBLICATION
TERMS: Personal checks allow 14 days, COD, MO.,
Certified Checks ... Credit Cards and 3.5%
Shipping and handling: \$2.00 plus current UPS or
Parcel Post rates.

ORDERS ONLY 1-800-351-0295

IB COMPUTERS

503-297-8425

1519 S.W. Marlow, Portland, OR 97225

TANDON 10MEG HARD DISK

ST603S

\$245

Limited
Supply

ATARI

ATR8000 64K
WITH DISK DRIVE

\$399

WITH 2 DRIVES ... ADD \$99.95

SINGLE 8" SS DD DRIVE

With Case & Power .. \$199.95

DUAL 8" SS DD DRIVES

With Case & Power .. \$349.95

ATARI WE SELL EVERYTHING
FOR ATARI

SCHOOLS NOTE: NETWORK
4 Ataris to Drive and/or Printer
ONLY \$125 + CABLES

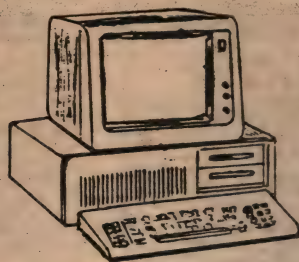
ATARI XL \$79.00
ATARI XE CALL
ATARI 520ST CALL
WE MAY HAVE SPECIAL PROMOTION
TODAY. SAVE MONEY IF WE DO.
ATARI 1050 DRIVES CALL
ATARI PRINTERS CALL
ATARI MODEMS CALL

SOFTWARE

CALL Each Order of \$75
Get 1 FREE Disk of Copy 130 or
Other Software (\$10 VALUE)

TI OWNERS WE STOCK
CORCOMP STUFF

CUSTOM IBM-PC COMPATIBLE SYSTEMS



Systems From

\$ 699

\$2599

We Specialize In Custom Packages! Call Us Today

FILLIMERICA CO.

9 HIGH COURT
LITTLE FALLS, NJ 07424

Call Collect

(201) 256-4240

Mon-Fri 9:00am-6:00pm

- 100% IBM—PC Compatible
- 10 MB Hard Drive
- 2 360K Floppy Drives
- 640 K RAM Standard
- Monochrome Monitor
- 2 Parallel, 1 Serial, Clock Light Pen, and Game Ports
- Enhanced Keyboard
- DOS

Ad Typesetting Service

Give your advertising the top quality look of professional typesetting. Text and graphics can be easily intermixed, and we can also digitize your artwork and include it into the ad. The price is very affordable, and the service is lightning fast. We can deliver camera-ready artwork in as little as 24 hours from receipt of your material. Call or write for an information packet describing our services.

In addition, we offer:

- Macintosh file printing at \$1/page
- Typesetting and printing of flyers, mailers, and documentation
- Transparencies, and a...

Macintosh 512K Kit !!!

A complete, do-it-yourself 128K to 512K kit, with RAM, sockets, and COMPLETE instructions for only:
\$ 159.00 !!

LaserGraphics



56 Worral Drive
Newark, Delaware 19711
(302) 731-1583 - eves & weekends

New 1 dir
Continued from page 93

case of a menu entry, independently of it). Function keys can also "point" to a command/menu selection. From there, a single keystroke does the job - "point-and-shoot" quick.

Version 3.5 greatly enhances the menu system within 1 dir. A *Menu-Builder* feature lets users create any number of menus; each can call a (.COM, .EXE, or .BAT) command, application, or another menu. Complex sequences of commands (as in changing sub-directories before and after executing an application) are easy to capture with a new *Batch-Builder* feature. *Batch-Builder* can even build batch (.BAT) files that call other batch files - a difficult task to accomplish from DOS. And a new *print* feature produces printed lists of 1 dir-sorted directories or of 1 dir menus, complete with all commands.

These new features amplify the benefits of 1 dir (pronounced "wonder") for new users who may be intimidated by DOS commands and syntax, as well as for experienced users who can appreciate the shortcuts it provides. 1 dir is of special value on hard disk systems, where large numbers of files and potentially confusing subdirectory structures may exist.

1 dir offers a robust complement of DOS-level activities: *Erase*; *Rename*; *Type* to display a file on screen; *Copy* to duplicate a file on one drive to any other drive, or to the same drive with a new name; *Date and Time*; *Run* to invoke executable (.COM, .EXE, and .BAT) files from the directory; and two others, *Compose* and *Execute*, which can create command lines like those in DOS.

1 dir can be customized to a user's taste through a number of easy-to-set installation options. Users with color monitors can select the foreground and background colors and more with which 1 dir screens will be displayed. Users can specify how much time must elapse before 1 dir will respond to keyboard inactivity by blanking the display (a "screen saver" feature). Information on (special system) hidden files can be displayed. And 1 dir presents directories sorted by file name, extension, size, or date. Name, extension, and size are always displayed; date can also be displayed, or the screen space used to display system and disk memory usage statistics as well as the current time and date.

For additional information, contact Bourbaki, Inc., 615 West Hays Street, Boise, ID 83701, (208) 342-5849. •

IBM PC-XT

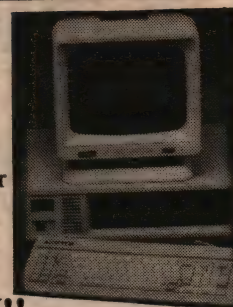
Compatible Computer

PC-640 ADVANTAGE

\$878.00

Perfect for O.E.M.'s

"As Compatible
AS COMPAQ or
any other Computer

1 YEAR
WARRANTY!!

- * 640K RAM to run Lotus 1 2 3, D Base III and Framework.
- * 8 I/O slots as IBM XT
- * 130W Power Supply
- * 8088 16 bit microprocessor
- * Extras include clock calender, parallel serial, game ports, RAM Disk and printer spooler

HARD DISKS

10 MB Rodime Kit.....	\$469
20 MB Seagate Kit.....	\$639
33 MB Tulin Kit.....	\$999
60 MB Priam Kit for AT.....	\$1529
20 MB Seagate Kit for AT.....	\$825
30 MB Seagate Kit for AT.....	\$1019
60 MB Archive tape backup.....	\$899
10 MB InterDyne tape backup.....	\$479

IBM AT's & XT's
35% off

System A:	IBM XT w/256K, 1 F.H. IBM Floppy Drive, 10 MB Drive, MonoGraphics card, PGS monitor	\$2599
System B:	IBM AT w/256K, 1-1.2 MB Floppy, 1-20 MB Hard Disk w/40MS access time w/80MS access time	\$3995 \$3795

Call for other PC Configurations

BOARDS AND MORE!

Hercules Compatible.....	\$149
AST SixPakPlus Compatible. 0K. \$147..w/384K.	\$198
135 Watt Power Supply.....	\$99
Princeton Graphics MAX-12.....	\$169
AST SixPakPlus w/Sidekick w/64K\$244..w/384K\$299	
AST Advantage w/128K.....	\$379
Hercules color card.....	\$168
Hercules Monographics card.....	\$299
Magnatron floppy disk box of 10.....	\$10.90

Toll Free Ordering

5K COMPUTERS

Quality Products At Low Prices

IN FLORIDA 800-432-8515 Ext 5118

Free Freight on prepaid orders

ELSEWHERE 800-624-3250

IF YOU'RE SERIOUS ABOUT BUYING A PRINTER

We suggest you to do the following four things: (especially if you don't know much about printers.)

- (1) Read Consumer Reports, October 83; June 85.
- (2) Gather the specifications and printing samples.
- (3) Search for the best interface and cable.
- (4) Shop around and compare: add up the total cost of a printer, interface, paper and shipping.

We can help you on (2) and (3), because printers and interfaces are our specialties. In fact, we are continually testing and evaluating new printers and interfaces. Send \$1 for the above information. Give your computer model and applications.

We offer you the following PLUG 'n' PLAY printer complete packages (you need nothing else) which include:

- (1) a printer of your choice,
- (2) the best interface with cable of our selection, and
- (3) a pack of 500 laser perforated 20# paper.

We guarantee it works beautifully the first time you plug it in and thereafter, because we have tested every interface included in the package. NO guesswork, no fuss. We also customize printer packages to suit your printing needs and applications. Over hundreds of satisfied customers can testify our printer packages are the best in performance and price.

Computer	Interface	star SC-10	EPSON LX-80 (w/tractor)*	Panasonic KX-P1091	Panasonic KX-P1092	CITIZEN MSP-10	OKI DATA ML192 (New)
Apple II+/Ile	Grafstar II						
Atari, TI99/4A	Axiom AT, TI	\$315	\$339	\$329	\$445	\$379	\$439
Commodore 64	Tymac, 2K	\$259 (SC-10C)					
Apple IIc (SuperPac)	Grappler C	\$335	\$359	\$349	\$465	\$399	\$459
Timex 2068	Aerco	\$305	\$329	\$319	\$435	\$369	\$429
IBM, AT&T, Kaypro, Sanyo: cable		\$265	\$289	\$279	\$395	\$329	\$389

Printing speed (cps): draft/NLQ/buffer... 120/30/2K 100/16/1K 120/22/1K 180/33/7K 160/40/1K 160/33/8K

*We include this important optional tractor unit (\$45 value) in our package, so you can use LX-80 trouble free. ALL these dot matrix printers can do graphics, super/subscript, underlining, italics, double-width & NLQ printing.

@SC-10C is a newly released printer with built-in interface and cable to fully emulate Commodore printers.

ALPHA SCIENTIFIC

P.O. Box 626, Chesterfield, MO 63017

Telephone: (314) 532-5282

We guarantee what we sell. Shipping charges (UPS ground, USA continent): free for all prepaid orders over \$200; \$2 for others. COD adds \$6. APO/FPO adds \$5 (postal ground). Mo resident adds 5.725%. Master/Visa adds 3%. We check for stolen credit cards. Personal check takes 2 to 3 weeks to clear. Give your computer model. We open (Central): Weekdays 9am-9pm Saturdays 9am-5pm

APPLE STUFF from Applied Engineering

- *RAMWORKS, 80 column, up to 1m Ram 128K...\$165 256K...\$209 512K...\$269
- Bonus: free super Appleworks expander.
- *TIMEMASTER II HO (New).....\$105
- *VIEWMASTER II+, 80 column.....\$115
- *Z-80+ with CP/AM 4.0 system disk...\$115
- *Z-80c, IIc, with CP/AM 4.0 disk.....\$135
- *Z-Ram, IIc with three software disks 256K.....\$339 512K.....\$399

APPLE IIc, IIe DISK DRIVE\$125

Mitac AD-3c, -3e, 1/2 height, direct plug in unit, 6 ms access time, 6 months wrty.

PRINTER SALES for IBM

- Bonus: 1 free printer cable + 1 spare ribbon.
- *Citizen MSP-20, 200/50 cps, 8K.....\$449
- *Epson FX-80+ w/optional tractor.....\$369
- The best selling printer: 160cps, 2K buffer
- *Okimate 20 color printer pack.....\$199
- with interface module, software, ribbons
- *TOSHIBA P1340, 24 pin overlay.....\$559
- Letter quality/draft: 55/144 cps; graphics

EPSON LX-90\$299

With tractor and printer interface. For Apple IIc, Atari, C64 & IBM PCjr.

Ashton-Tate Introduces Framework II

Ashton-Tate has introduced Framework II, an integrated software package designed specifically for managers and professionals who regularly use a spreadsheet and word processor.

Available in October, Framework II is built on the company's widely-acclaimed Framework product that shipped in July 1984. Framework II contains a larger, faster and more powerful spreadsheet and an advanced word processor that includes an 80,000-word spell checker, visible page breaks and a built-in mailmerge capability. The two primary functions are supported by full-integrated telecommunications, database, outlining and graphics modules in addition to an expanded and well-documented programming language. Framework II retains a consistent command structure throughout all functions, providing users with unparalleled ease of learning.

Framework II's seamless integration of spreadsheet and word processor allows business users to organize concepts and develop finished documents,

complete with words, numbers and graphs.

"Framework II was developed in direct response to input from hundreds of Framework users," said Edward M. Esber Jr., Ashton-Tate president and chief executive officer. "And unlike other integrated products, Framework II's spreadsheet and word processor compare favorably with competing stand-alone products. It is at last no longer necessary to sacrifice functionality for integration," added Esber.

Framework II's suggested retail price is \$695, the same as Framework, and includes the spelling checker and outliner. Until December 31, 1985, registered Framework users can upgrade to Framework II for \$140. Users who purchase Framework version 1.0 or 1.1 between August 1, 1985 and October 31, 1985 are entitled to a free upgrade. Unregistered users can call a toll free number (1-800-437-4329) for upgrade information. Registered corporate

Continued on page 96

Lotus Lets Users "Boot" Software From Hard Disks

Lotus Development Corporation announced recently that future versions of its business software products, 1-2-3 and Symphony, as well as other new products, will be encrypted so they can be directly installed and "booted" from hard disks.

Currently, users with hard disk systems must insert a system disk into the "A" (floppy) drives for their personal computers each time they use a program, a major concern of Lotus product users.

The new procedure eliminates the need to have a system disk present in drive "A" for hard disk systems, thereby simplifying product use. Users will be allowed to install each Lotus product onto just one hard disk at a time. However, they may later "de-install" the product back onto the system floppy disk for reinstallation on another hard disk.

Each user also will be provided with a back-up system disk, which will allow for a second hard disk conversion. Users with floppy disk systems can continue to "boot" Lotus

products from drive "A" as usual.

The first product to be so encrypted will be the new version of 1-2-3 Release 2, which will ship to dealers in September. A hard disk "bootable" version of Symphony 1.1 will be available this fall. It will be offered free to users, who already purchased Symphony 1.1 released in July. Details of upgrade programs for hard disk "bootable" versions of Symphony 1.1 and 1-2-3 Release 2 will be announced next week.

Lotus also announced its intent to develop a comprehensive local area network (LAN) solution that will be compatible with most of the leading networks. The company already has announced that the current version of Symphony 1.1 and the upcoming 1-2-3 Release 2 are both designed to support the IBM PC network, provided that a system disk is present in the "A" drive.

"We have spent a great deal of time identifying our customers' concerns about using our products," said Charles J. Digate, vice president and

general manager of the newly formed Business Products division. "Functional compatibility with hard disk systems is a major step toward eliminating some of those problems."

"We also recognize that we must remove some of the barriers that make our products difficult to use on LANs. We currently are testing several LAN solutions with our customers, and we are committed to having a comprehensive solution in place for LAN users by mid-1986," Digate added.

Lotus Development Corporation, headquartered in Cambridge, Mass., is the world's leading developer of software for personal computers. The company's family of business software products includes 1-2-3, Symphony and Jazz. Net income for the first six months of 1985 totalled \$20.4 million on revenues of \$104 million.

For more information contact Lotus Development Corporation, 55 Cambridge Parkway, Cambridge, MA 02142 (617) 577-8500.

Mention that you read about it in the Computer Shopper. ●

TIPZ FOR YOUR PC....

ONE COMPUTER & TWO PRINTERS? \$65⁹⁵

Stop Plugging & Unplugging

Now you can SHARE your parallel port with TWO PRINTERS! Use your choice of printers on ONE COMPUTER with a simple flick of a switch.

One Parallel Plug In, Two Parallel Plugs Out.

To install, connect any standard Centronics Parallel Cable directly to the switch and connect the switch cables to each printer. The Printer Switch will redirect four signal connections to your chosen device. You can even use your existing cable so no extra cables may be required.



Compact Design, Quality Construction.

Small (5 1/4" x 3 1/4" x 1 1/4") heavy duty enclosure fits any workstation or even wall mounts. This switch is U.L. Approved and thoroughly tested by the manufacturer.

One Year Warranty

Designed to operate faithfully for years and warranted against defects for one year. Two 3 1/2 Foot Printer Cables Included.

\$69⁹⁵

(2120)
Plus \$4.50 Shipping & Handling

ONE COMPUTER & TWO SERIAL DEVICES?

Same as above for SERIAL Devices. DB-25 Pin connectors and Null Modem Option on Channel B!

TWO COMPUTERS & ONE PRINTER? \$85⁹⁵

Share Your Printer

A quality switch makes sharing your printer easy. A smooth slide switch makes computer selection fast!

Two Parallel Cables In.
One Parallel Cable Out.

Switch has two female Centronics Connectors for each computer. One SIX FOOT Cable terminated in a Male Centronics Connector Included for your printer! A quick & easy solution.

Fits In Your Workstation

Durable high impact enclosure is unobtrusive (5" L x 5 1/4" D x 2 1/4" H). U.L. Approved and Individually Tested.



One Year Warranty

15 DAY MONEY BACK GUARANTEE. NO QUESTIONS ASKED For every 50th customer FREE GIFT

EASY TO ORDER

Simply Write or Call Tipz Direct, Inc. Please specify the product number (# number), quantity, and payment info (Visa, M/C, or Money Order). Be sure to provide your name, address, area code, and phone so we can contact you if any questions arise. Each order is shipped within 48 hours via U.P.S.

Simply Call 1-800-TO-ASK-US

(In California 415-567-4067)

Ordering Assistance Available 24 hours.

Information Available 8am-5pm PST.

CA Residents Add 6.5% Tax

Tipz P.O. Box 690, San Francisco, CA 94101

Tipz

© Tipz Direct, Inc.
Ad: CSM-124

KEYBOARD DRAWER STOWS OUT OF SIGHT! \$49⁹⁵

Customize Your Workstation

Now you can purchase a custom drawer designed specifically for your computer keyboard. Pull it out when you login, then stow it protectively away from dust and dirt. Neat, tidy, and professional in appearance.

Slide It Away When Not In Use

Free valuable work space at your computer workstation. The keyboard drawer locks in a fully extended position to the keyboard does not "travel" while in use. And, it can be adjusted to three heights for different users. Once you're done, simply slide it away and out of sight.



Quality Construction & Smart Design

Built of strong steel and molded plastic, this drawer can work effectively with keyboard measuring 20 1/2" wide x 10" deep x 3 3/4" high. A smart accessory to add to your crowded workstation. Measure your keyboard and see if this drawer will work for you.

Ashton-Tate

Continued from page 95

Framework users are eligible for bulk purchase discounts on volume upgrades.

Framework II's spreadsheet operates on average twice as fast as Framework's spreadsheet and is two to five times larger using the same amount of random access memory (RAM). The spreadsheet uses "sparse matrix implementation," meaning that unfilled cells within a spreadsheet take up little or no memory, providing for more efficient use of RAM.

Framework II's spreadsheet takes advantage of "virtual memory" in which additional workspace may be accessed from either a hard disk or add-

in memory boards such as the AST RamPage! and Intel Above Board. This capability permits users to go beyond the 640K-byte RAM limit imposed by current personal computer architecture. The spreadsheet can handle a maximum of 32,000 rows by 32,000 columns, although users are encouraged to break apart large spreadsheets into smaller, more manageable ones that can be linked.

Framework II's word processor includes an 80,000-word spelling checker with automatic correction and the ability to create custom lists of specialized terms. The word processor automatically inserts page breaks, and can employ

soft hyphens and hard spaces to prevent selected words from becoming separated. Framework II's "record mode" allows users to record and store frequently used words or phrases as abbreviations for single-keystroke retrieval.

Framework II's word processor also provides built-in mailmerge and label printing along with a style library for creating and storing different print formats. It incorporates menu-driven print formatting and can print and format spreadsheets, graphs and text on the same page.

A unique feature of Framework II is a special "library cabinet" that cannot be deleted and is automatically loaded into the computer each time the program is used. It includes all recorded abbreviations, macros and a phone book, and is structured in outline form to remain consistent with the rest of the program.

Framework II's telecommunications module is completely integrated into the program, and can be accessed from a new pull-down menu that includes single-key access to Dow Jones, The Source and Compuserve. The telecommunications function freely converts and exchanges data with the spreadsheet and word processing modules. It also can

operate in the background, allowing users to work on other functions while waiting for a telecommunications session to finish.

The spreadsheet and word processor, along with Framework II's supportive functions of telecommunications, database and graphs, are tightly integrated so that common syntax and keystrokes are used throughout the program. For example, the spell checker works on spreadsheets as simply as it does on text. Also, all word processing and formatting features are available for any editing operation, regardless of the specific function.

Framework II provides a variety of import/export formats such as dBASE II/III, IBM DCA/Displaywrite, Lotus 1-2-3 (version 1.0), WordStar, MultiMate, ASCII text and VisiCalc DIF. Framework II makes room for additional formats such as links developed by in-house corporate programmers that allow communication directly with a mainframe. Framework II is automatically configured to run dBASE III, other applications and DOS programs from its pull-down menus.

Framework II runs on the IBM PC, PC XT, PC AT, 3270 PC and compatible systems with 384K bytes of RAM and

two 360Kbyte floppy drives or a single 360Kbyte floppy and a hard disk. The product supports the AST RamPage! and Intel Above Board add-in memory boards, four different modes of the IBM Enhanced Graphics Adaptor, a monochrome or color monitor, PC DOS 2.0 or higher and more than 100 different printers, plotters and graphic cards.

In conjunction with the introduction of Framework II, Ashton-Tate has announced the Decision Maker's Series, a series of add-on packages for Framework II developed by the company's Publishing Group. With a suggested retail price of \$69.95 each, the Decision Maker's Series of products assist Framework II users to analyze projects, manage finances and make business decisions. The first two packages available will be Project Analysis and Decision Modeling. Ashton-Tate also announced that its Publishing Group will release several publications to support Framework II.

For more information contact Ashton-Tate, 10150 West Jefferson Boulevard, Culver City, CA 90230, 213-204-5570, Telex: 669984

Mention that you read about it in the *Computer Shopper*. ●

Vanilla Wafers™
The cookies computers love to bite

- Quality Media
- Unconditional Replacement Guarantee
- Hub Rings - Tyvek Env.
- Write Protects

Software Publishers: If you like these prices, call and ask about our duplication services!
A duplication house has to have quality diskettes, and WE DO!

memory chips, inc.

DUPLICATION & MEDIA

927-A Lincoln Ave. • San Rafael, CA 94901 • 415/456-4211
Toll Free 800/468-3322 (CA) • 800/824-3735 (Nat'l)

		BOXED (13 Disks!)			
		SS/DD	DS/DD	DS/DD	DS/DD
BULK		50+	250+	500+	1000+
5.25 SS/DD	.90	.85	.80	.75	.70
5.25 DS/DD	1.10	1.05	1.00	.95	.85
IBM PC/AT	3.60	3.50	CALL	3.30	3.20

VISA/MASTERCARD/G.C.O.D.



AND COMPARE OUR PRICES

On EPROM Programmings and UV Erasers.



Priced affordably at \$395.00, the Shooter should be your first consideration when programming EPROMS. A stand-alone unit, the Shooter has the capacity to interface with any computer or terminal with a standard RS-232 port. Portable and rugged, the Shooter is high in design quality. The Shooter is able to program and verify 2716-27256 EPROM's, and a User Friendly menu helps you do your best programming ever. The Shooter is accompanied by a full 90 day parts and labor warranty. Call us today for the number of your local distributor.

... It's Only Logical

Logical Devices, Inc.
1321 N.W. 65th Place
Ft. Lauderdale, FL 33309
FL (305) 974-0967 1-800-EE1-PROM

MBI MBI MBI MBI

ATTENTION DEALERS



ELECTRONIC COMPACT NP

• IMPACT DOT MATRIX PRINTER • 165 CHARACTERS PER SECOND • BI-DIRECTIONAL LOGIC SEEKING • 96 CHARACTERS ASCII WITH DESCENDERS • TRACTOR-FRICTION FEED • UP TO 10" WIDTH PAPER • 3 MILLION CHARACTER RIBBON CARTRIDGE • PARALLEL INTERFACE STANDARD • RS-232C OPTIONAL • 17x17 MATRIX-NEAR LETTER QUALITY MODE CONTROL PANEL SELECTABLE • 1920 CHARACTER BUFFER • 100% EPSON COMPATIBLE

MODEL NO.	DESCRIPTION	DEALER PRICE
OA-01	COMPACT NP DOT-MATRIX PRINTER	\$ 275.00
OA-02	COMPACT NP LETTER QUALITY w/SERIAL/PARALLEL	285.00
OA-03	COMPACT 2 CORRECTION TYPEWRITER/PARALLEL PRINTER	335.00
OA-30	ESW-3000 50 CPS LETTER QUALITY DAISY WHEEL	1,035.00
OA-04	SERIAL EXPANSION INTERFACE FOR NP	60.00
OA-05	SERIAL EXPANSION INTERFACE w/2K BUFFER & REPRINT FOR COMPACT 2	95.00
	DAISY WHEELS FOR COMPACT 2 AND RO	8.50
OA-06	ESW FORMS TRACTOR	145.00
OA-07	ESW SHEET FEEDER - SINGLE BIN	385.00
	ESW SHEET FEEDER - DUAL BIN	530.00
	RIBBON CARTRIDGE FOR OLYMPIA NP	5.00
	MULTI-STRIKE RIBBON FOR OLYMPIA COMPACT 2 & RO	5.00
	CARBON SINGLE-STRIKE CORRECTABLE RIBBON FOR COMPACT 2	4.75
	"LIFT-OFF" CORRECTION TAPE FOR COMPACT 2 (BOX OF 5)	5.50

ELECTRONIC COMPACT 2

• BUILT-IN PARALLEL CENTRONICS INTERFACE • 14 CHARACTERS PER SECOND • 46 KEY KEYBOARD/100 CHARACTER ACCESS • 46 CHARACTER AUTOMATIC "LIFT-OFF" CORRECTION MEMORY • 10, 12, 15 CPI PITCH SELECTION (KEYBOARD SELECTABLE) • MULTI-PITCH WHISPER WHEEL (10, 12 CPI) INCL. • "ON-LINE" KEY FOR EASY COMPUTER ACCESS • AUTOMATIC PAPER FEED AND CENTERING • 14 1/8" PAPER CAPACITY • RS-232C INTERFACE/2K BUFFER AVAILABLE • CARTRIDGE RIBBON/CORRECTION TAPE

ELECTRONIC COMPACT RO

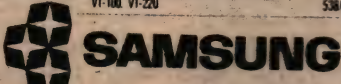
• DAISY WHEEL PRINTER • PARALLEL AND SERIAL INTERFACE • 14 CHARACTERS PER SECOND • 10, 12, 15 CHARACTERS PER INCH • 256 CHARACTER BUFFER • 14 1/8" FORM WIDTH • BI-DIRECTIONAL TRACTOR FEED • BI-DIRECTIONAL LOGIC SEEKING • BOLD, DOUBLE, UNDERLINE, SUB/SUPER SCRIPT PRINTING • UP TO 4 COPIES PLUS ORIGINAL • CARBON, MULTISTRIKE, AND FABRIC RIBBONS AVAILABLE (UP TO 800,000 CHARACTERS)



- ALL MONITORS INCLUDE PROPER CABLES
- BACKED BY 1-YEAR WARRANTY

*IBM HAS SELECTED THE 1322 MONITOR AS THEIR OWN CHOICE FOR THE "IBM COLOR GRAPHICS MONITOR"

CAT. NO.	DESCRIPTION	DEALER PRICE
TC-1322	13" RGB MONITOR FOR IBM & APPLE	\$375.00
TC-1330	13" COMPOSITE COLOR w/LUM & CHROM INPUT SWITCHABLE TO GREEN	184
TC-1360	HI-RES RGB SWITCHABLE TO GREEN & AMBER	184
TC-1370	13" SUPER HI-RES RGB (31mm DOT PITCH)	490.00
TC-AC	APPLE RGB CONTROLLER FOR TC-1322	105.00
TC-220	COMPUTER DISPLAY TERMINAL - VT-52	
	VT-100, VT-220	538.00



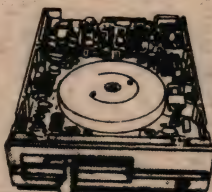
CATALOG NO.	DESCRIPTION	DEALER PRICE
SG-1256G	12" COMPOSITE INPUT GREEN	\$ 75.00
SG-1256A	12" COMPOSITE INPUT AMBER	77.00
SG-1256G	12" TTL INPUT (IBM) GREEN	98.00
SG-1256A	12" TTL INPUT (IBM) AMBER	100.00
SG-1451-M	14" MEDIUM-RES COMPOSITE COLOR (63mm DOT PITCH)	185.00
SG-1451-H	14" HIGH-RES COMPOSITE COLOR (52mm DOT PITCH)	215.00
SG-1452-M	14" HIGH-RES (39mm DOT PITCH)	340.00
SG-1452-H	14" SUPER HIGH-RES RGB (31mm DOT PITCH)	360.00
SG-1251M	12" HIGH-RES RGB (39mm DOT PITCH)	325.00
SG-1251H	12" SUPER HIGH-RES RGB (31mm DOT PITCH)	350.00

CDC CONTROL DATA CORP.



CAT. NO.	PRODUCT	DEALER PRICE
CD-01	FULL HEIGHT 360KB 5 1/4" DRIVE - IBM	\$95.00
CD-02	HALF HEIGHT 360KB 5 1/4" DRIVE - IBM	95.00

HI-TECH



CAT. NO.	PRODUCT	DEALER PRICE
TE-558	HALF HEIGHT 360KB 5 1/4" DRIVE IBM PC	\$95.00
TE-551	HALF HEIGHT 360KB 5 1/4" DRIVE IBM AT	125.00

EVEREX

CAT. NO.	PRODUCT	COMPATIBILITY	DEALER
EVEREX GRAPHICS ADAPTERS			
EX-100	Graphics Edge Color and Mono Chroma Graphics Adapter Parallel Port	IBM PC, XT, AT	\$279.00
EX-110	The Edge Color and Monochrome Graphics Adapter Parallel Port	IBM PC, XT, AT	275.00
EX-120	Evergraphics Hi-Res Monochrome Graphics Adapter Parallel Port	IBM PC, XT, AT	199.00
EX-130	Magcard Multifunction with Serial Parallel Clock/Cal. up to 304K, Game Port	IBM PC, XT	180.00
HARD DISK SUBSYSTEMS (Micro-Science 1/2 HT.)			
EX-10MD	10MB w/Everex Controller Cables Brackets and Utilities	IBM PC, XT	590.00
EX-20MD	20MB w/Everex Controller Cables Brackets and Utilities	IBM PC, XT	750.00
EX-20AT	20MB w/side Rails Mounting Hardware, Utilities	IBM AT	650.00
TAPE BACKUP SYSTEMS			
EX-10MT	10MB 1/2 HT. 1/2 inch Tape Spool, Internal Backup Utilities	IBM PC, XT	475.00

CAT. NO.	PRODUCT	COMPATIBILITY	DEALER
EX-20MT	20MB 1/2 HT. 1/2 inch Tape Cassette, Internal Backup Controller, Utilities	IBM PC, XT	590.00
EX-45PC	45MB 1/2 HT. 1/2 inch Tape Cartridge, Internal Backup Controller, External 704 Area Power Supply Utilities	IBM PC	825.00
EX-45KT	45MB 1/2 HT. 1/2 inch Tape Cartridge, Internal Backup Controller, External 404 Area Power Supply Utilities	IBM XT	815.00
EX-45AT	45MB 1/2 HT. 1/2 inch Tape Cartridge, Internal Backup Controller, Utilities	IBM AT	790.00
EXPANSION SYSTEMS			
EX-1000	Simultaneous Expansion Chassis for 2 - 1/2 HT. Disk or Tape Drives 3 Full Length and 2 Short Slot Cards	IBM PC, XT	650.00
EX-1010	Mini Expansion System allows 2 - 1/2 HT. Disk or Tape Drives 4 Full Length Boards	IBM PC, XT	625.00
EX-1040	Full Size Expansion System allows up to 4 1/2 HT. Disk or Tape Drives and 6 Full Length and 1 Short Slot Card	IBM PC, XT	690.00

SENTINEL DISKETTES

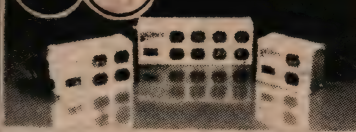
STANDARD RETAIL PACKAGING 5 1/4"		
SS-DD BLACK BOX OF 10		\$12.00
DS-DD BLACK BOX OF 10		14.50
SS-DD ONE COLOR BOX OF 10		13.00
DS-DD ONE COLOR BOX OF 10		15.50

"DIAL-A-DISK" PROMOTION 5 1/4"

10 Different colored disks in a see-through disk case. The "Fac-Pac 10" features a lever that lifts the disks so that all labels can be read.

SS-DD MULTI-COLOR BOX OF 10	14.50
DS-DD MULTI-COLOR BOX OF 10	16.50

BULK PRICES		
Disks are packaged in plastic bags of 50 with disk sleeve. Minimum order 100 disks - mixed types in lots of 50 only		100+
SS-DD BLACK		\$1.00
DS-DD BLACK		1.25
SS-DD COLOR		1.10
DS-DD COLOR		1.35
5 - DISKETTE MAILERS		\$.70
ANTI-STATIC MATS		
20 x 40		\$38.50
20 x 20		27.50



Features: • 98% Efficient • Load regulation is 2% for no load to full load • 0° to 60°C operating temperature range with no derating • Line regulation is ±5% over input range of 96 to 138 volts AC on LC1200 and LC1800 • Response time 1/2 cycle typical, 3 cycles maximum.

LINE FILTER, SURGE/SPIKE SUPPRESSORS

MODEL NO.	OUTLETS	CORD	FEATURES	DEALER PRICE
LMAR 2-6	2	6'	1 Isobar Filter	\$ 34.00
LMAR 4-6	4	6'	2 individual Isobar Filters	44.00
LMAR 8-15	8	12'	4 individual Isobar Filters	53.00

BROWN-OUT PROTECTORS/LINE CONDITIONERS

LC-1200	4	10 amps Isobar Protection	\$142.00
LC-1800	6	15 amps Isobar Protection Line Monitor Lights	190.00

EMERGENCY POWER SYSTEMS

EC-200-10	200	10 ampers in battery 12VDC to 117VAC	\$235.00
EC-200-20	200	20 ampers in battery 12VDC to 117VAC	285.00
EC-425-FC	425	FC and Audible Alarm 12VDC to 117VAC	355.00
EC-1000-FC	1000	FC and Audible Alarm 12VDC to 117VAC	854.00



MICROTEK EXPANSION CARDS

APPLE II+ /IIE COMPUTERS

MODEL	DESCRIPTION	DEALER PRICE
PARALLEL PRINTER CARDS		
RV-611C	PARALLEL PRINTER CARD	\$47.50
DUMPLING-GX	GRAPHICS PRINTER CARD	61.20
DUMPLING-0	BUFFERED GRAPHICS PRINTER CARD (w/o RAM)	128.50
DUMPLING-16	BUFFERED GRAPHICS PRINTER CARD (16K RAM)	146.20
DUMPLING-32	BUFFERED GRAPHICS PRINTER CARD (32K RAM)	162.50
DUMPLING-64	BUFFERED GRAPHICS PRINTER CARD (64K RAM)	193.80
SERIAL I/O CARD		
SV-622E	SERIAL CARD FOR PRINTERS & MODEMS	68.00
MT-5PC	EXTERNAL CABLE FOR SV-622E	27.20
MEMORY EXPANSION AND DISK EMULATION		
BAM-16MM	16K MEMORY CARD FOR APPLE II+ WITH AMMS	68.00
BAM-64	64K MEMORY CARD	135.30
BAM-128	128K MEMORY CARD	203.30
Q-DISC	128K DISK EMULATION SYSTEM WITH MAGI CALC	271.30

VIDEO EXPANSION

MAGNUM-80	80-COLUMN VIDEO CARD	135.30
MAGNUM-80mc	80-COLUMN VIDEO CARD FOR APPLE IIe w/64K RAM	94.50
MAGNUM-80s	80-COLUMN VIDEO CARD FOR APPLE IIe w/o RAM	34.00

COLOR ENHANCEMENT

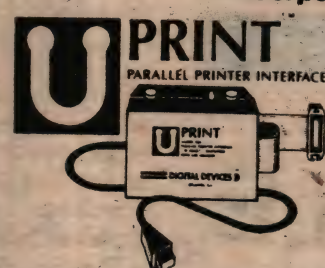
RAIMBO-256C	RGB MONITOR CARD FOR ELECTRONOME MONITORS	101.30
RAIMBO-256T	RGB MONITOR CARD FOR TAJAN MONITORS	101.30
RAIMBO-16A	RGB MONITOR CARD FOR AMPEX MONITORS	80.80

IBM PC/XT/AT COMPUTERS

GL CLOCK	CLOCK/CALENDAR	\$52.00
GL PARALLEL	PARALLEL PRINTER CARD	52.00
GL SERIAL	ASYNCHRONOUS SERIAL I/O CARD	57.30
GL S-P	SERIAL & PARALLEL CARD	101.40
GL MEM-0	384K MEMORY CARD WITH NO RAM	101.40
GL MONO-S	MONOCHROME DISPLAY CARD WITH SERIAL AND PARALLEL PORTS	162.00
GL COLOR 1	COLOR GRAPHICS CARD	162.00

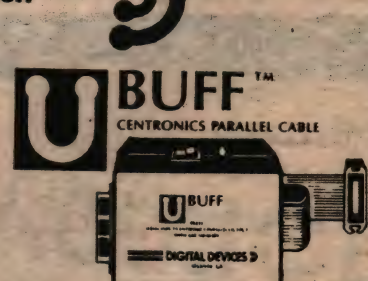
RAM CHIPS AVAILABLE FOR MEMORY UPGRADE

DIGITAL DEVICES Corporation



Expand your Atari, Apple IIc, IBM PC Jr. or Commodore computer with Digital Devices U-PRINT. We make it simple to add any printer you choose. U-PRINT interfaces feature industry standard Centronics parallel connectors to hook up an Epson, Star, NEC, C.Itoh, Olympia, or any other printer. Available with a 16-64K Buffer.

CAT. NO.	MODEL	PRODUCT	DEALER PRICE
DD-08	U-PA	U-PRINT MODEL 'A' FOR ATARI	\$50.00
DD-01	XLP	AFCEP FOR ATARI	46.00
DD-02	12KLP	AFCEP FOR ATARI 1200XL	46.00
DD-03	12KLP	AFCEP FOR ATARI 1200XL w/SERIAL I/O	50.00
DD-04	U-PC	U-PRINT 'C' FOR COMMODORE w/GRAPHICS	35.00
DD-16	P-16	PARALLEL PRINTER BUFFER (to 64K)	75.00
DD-06	AL-3	AR-LINK MULTI-I/O BOX - 6 CABLE	21.00
DD-07		HUMPTY DUMP SCREEN DUMP (ATARI DISK)	21.00



Ever get stuck while your printer catches up? The PRINTER BUFFER eliminates waiting by rapidly accepting data in memory, then relaying it at the printer's rate, freeing the computer for your next job. User-upgradable memory (16k to 64k) allows up to 32 pages of data to be stored. Compatible with all computers and parallel printers.

CAT. NO.	MODEL	PRODUCT	DEALER PRICE
DD-09	U-CALL	UNIVERSAL MODEM INTERFACE (RS-232C)	\$80.00
DD-10	UP-A16	PARALLEL INTERFACE/16K-64K BUFFER ATARI	65.00
DD-11	UP-C16	PARALLEL INTERFACE/16K-64K BUFFER COMMODORE	80.00
DD-12	UP-A16	PARALLEL INTERFACE/16K-64K BUFFER APPLE IIe	75.00
CHIPS		UPGRADE MEMORY CHIPS FOR BUFFERS (2 Chips)	2.00

GIM ELECTRONICS, CORP.

for use with the following machines:
• IBM PC • Apple II • Apple IIc
• Apple IIe • Apple IIx • Franklin Ace 1200 • Franklin Ace 1000 • Columbia Portable with IBM game card
• Compaq Portable with IBM game card
• IBM PC Jr.
*Game card not included.

CAT. NO.	PRODUCT	DEALER PRICE
GC-2100	IBM/APPLE JOYSTICK CONTROLLER (ABOVE MACHINES ONLY)	\$24.95
GE-60	RF MODULATOR FOR APPLE & FRANKLIN	15.00
GE-70	MOUSE FOR APPLE IIe, IIc, IIx, IIe	184
GE-80	IBM DUAL-PORT GAME BOARD	
	AVENGER JOYSTICK/ATARI, C-64	5.00
	SEARS ARCADE	



CAT. NO.	PRODUCT	DEALER PRICE
TC-01	"CONNECTION" FOR STAN MICROVAX PRINTERS	\$35.00
TC-02	"CONNECTION" FOR EPSON, OLYMPIA, PANASONIC, ETC.	55.00
TC-03	"CONNECTION" FOR OKIDATA	55.00
TC-04	"CONNECTION" FOR PROWRITER, C-Itoh	17.50
TC-100	PPC-100 PARALLEL INTERFACE APPLE IIe II+	35.00
TC-150	TACKLER - GRAPHICS INTERFACE	42.00

INNOVATIVE CONCEPTS, INC.



COMPUTER ACCESSORY PRODUCTS

CAT. NO.	PRODUCT	DEALER PRICE	CAT. NO.	PRODUCT	DEALER PRICE
005-13-079	FLIP W FILE™/MM	\$11.50	002-13-231	FLIP W FILE™/MM/DO	7.50
024-13-732	FLIP W FILE™/MM/XT	17.50	021-13-740	FLIP W FILE™/MM/DO-XT	14.50
034-13-137	FLIP W FILE™ II™ 25	11.50	040-13-252	FLIP W FILE™ II™ FOR MICRO DISKETTES	17.50
035-13-139	FLIP W FILE™ II™ 50	17.50	008-13-812	FLIP W FILE™ I/O™ SPECTRUM SERIES	11.50
026-13-794	DATA CASE™	8.75			
033-13-135	FLIP W FILE™/15	5.75			
008-13-025	FLIP W FILE™/10	2.90			



BUSINESS & PERSONAL
Micro-Buy Inc. COMPUTERS ACCESSORIES,
SUPPLIES & SUPPORT

—ORDERS—
—INFORMATION—
ORDERS OUTSIDE OF N.Y. CALL
1-800-MBI-5666
IN N.Y. CALL
(516) 420-1633
242A ROUTE 109 • FARMINGDALE, NY 11735

\$50 POLYCALC \$50

- Curve fitting and plotting for science and industry—the curve fitting solution for IBM PC's* and compatibles
- Uses a high speed method derived from the Bezier method and the La Grange interpolating polynomial method to calculate the equation for the data
- Calculates equations for $Y=F(X)$ and $X=F(Y)$
- Calculator features allows you to query for X or Y based on a user input value fed to the derived equation
- Calculates 5th order equations in less than one second
- Handles up to 1000 data points
- Foreign file input feature allows virtually any ASCII data file of X,Y values to be used—manual input is also available
- Plots data points and curves to the screen, a disk file, or an IBM graphics compatible printer

The POLYCALC package is a fast and easy to use solution to your scientific data presentation needs. The system comes with a complete manual and sample applications. All you need to run POLYCALC is a PC with 256 K RAM and a color graphics card. The turbocharged POLYCALC option (\$5 extra) uses the 8087 math chip to give over 10 times the performance.

MIRAC accepts Visa and MasterCard (\$2 fee) and COD (\$5 fee).

IBM PC* is a registered trademark of the IBM Corporation

MIRAC

"Just Short of a Miracle"

4115 Edwards Road, Suite #6 • Cincinnati, Ohio 45209
(513) 731-0800 • (513) 731-1154

A Site License for User Groups A New Way to Generate Club Revenue

It is well known that members of user groups are among the most knowledgeable computerists. To further the user group concept, hardware manufacturers have provided various means of support, usually other than financial. Unfortunately, most group coffers are strained since the major and often only source of revenue is annual dues. Can the software publisher help?

This developer/publisher is inclined to offer a special site license, the fallout from which can not only raise funds for the group but would serve as an inducement to potential new members and perhaps increase unit sales for the vendor. How is this possible?

Using our \$125 Filebase as an example, assume the license for a group size of 100 provides the following. For \$1200 (10% of list price x number of members), the group receives master diskettes, 25 manuals (25% of group), registration cards, and diskette labels identifying the group license and permission to make as many copies as labels.

The first advantage is that cost of diskette production is transferred from the publisher to the user. Other benefits to the publisher include a single bulk shipment reducing handling and record keeping and

more unit sales. If 25 members initially contribute to the cost of the site license, each pays \$48 instead of \$125. But what other benefits accrue to the group?

The group sets an internal base price of \$48, the pro-rated participating member cost. Any subsequent copy made for another member would be by means of a payment to the group treasury for the \$48 base price. An additional manual, registration card and official diskette label identifying the site license is obtained at nominal cost. In the case of Filebase this would be \$25. The treasurer issues a \$25 check to the publisher resulting in a net gain of \$23 for the group while having provided an excellent purchase price for the member who becomes a registered user.

If the initial response is by only 20 members, the base price is \$60, still a considerable savings. While the original group of purchasers pay more per copy because of smaller divisor, the ultimate benefit to the organization is greater because the ultimate benefit to the organization is greater because the differential (\$60 less \$25) is greater increasing the group's cash position by \$35 rather than \$23. But first, the 5 remaining license labels and manuals are used to

generate \$300 directly deposited into the treasury with nothing to the publisher.

Another option the membership could implement is to escrow a portion of the revenue to be periodically distributed among the prior purchasers. Theoretically, an original purchaser could ultimately recover a good portion of his purchase price.

A group with site licenses for several software products can immediately offer considerable direct financial benefits to prospective new members. This not only becomes an incentive to join but raises additional moneys for the treasury beyond the normal new member fee. And with more discretionary treasury funds, would the group not be in a better position to sponsor fests and other educational activities to raise the awareness of the general public?

Some software publishers could argue that the long-term effect would tend to reduce their revenues resulting in higher initial list prices for new software products. On the other hand, the plan might be a partial solution to forthcoming pressures of lower-priced perhaps less functional software. Furthermore, most software becomes dated and sales ultimately decline. Such licensing might actually encourage development of newer and better packages. And, temptation for illegitimate copying might be lessened thereby increasing legitimate sales.

It is generally accepted that user group officials do not condone unauthorized copying. Wouldn't this site license plan further encourage group officials to formally adopt and administer a ban on illegal copying by the few members whose ethical rationale permit them to give or accept unregistered copies?

FILEBASE is a variable length fields data manager whose files interface with letter-merge functions of many popular word processors including WordStar/MailMerge, Multimate, Freestyle, Word Perfect, Peachtext and others. Existing comma delimited format records such as MailMerge files can be processed directly with all the FILEBASE functions. The program automatically determines the number of fields and other properties of the existing file. In addition, block format field records created by Multimate, Peachtext List Manager, or

WHOLESALE Prices to Everyone

PRINTERS

	Retail	Our Price
Epson FX 85	\$ 499.	\$ 340.
Epson FX 185	699.	470.
Epson LQ 1500 w/parallel	1,395.	895.
Ask us about comparable savings on other Epson printers.		
Daisywriter 2000	1,195.	687.

WHILE THEY LAST!

Parallel Printer Cables	45.	15.
-------------------------	-----	-----

HARD DISKS

	Retail	Our Price
10 MB	\$1,195.	\$ 525.
20 MB PC/XT compatible	1,495.	675.

For home or office, our hardware will satisfy your computer needs. Send your order today or give us a call:

1-800-356-8086

In Oklahoma, Call 918-663-8086

SCI Wholesale

7625 East 51st Street
Tulsa, Oklahoma 74145

Money order or certified check must accompany order. COD certified check only. Oklahoma orders must add 6 1/4% sales tax. Manufacturers' warranties apply on all merchandise. Satisfaction guaranteed.

PC Jr

ORPHANS

HELP IS ON THE WAY!

ADD 1 OR 2 DRIVES
AS EASILY AS YOU PLUG A
CASSETTE DECK INTO YOUR STEREO.

- *DOES NOT USE MODEM SLOT
- *NO INCREASE IN BOOT TIME
- *1 YEAR FULL GUARANTEE
- *PROFESSIONALLY DESIGNED

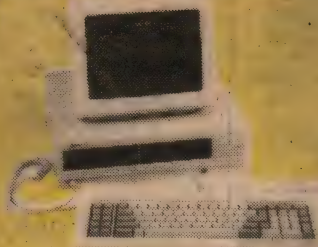
1 EXTRA DRIVE	\$349.00
2 EXTRA DRIVES	\$549.00

SHIPPING INCLUDED

MARIN SCOTT CORP.
PO BOX 4 (5 MAIN STREET)
SPRINGFIELD, VT 05156
1-802-885-2566
VISA MASTER CARD

Continued on page 100

NEW!
ZFox



The Quick ZFox Jumps Over the big blue clones.

More Speed: The ZFox runs virtually all software for the IBM-PC at 8 Mhz. 1.7 times faster, but will slow down to IBM's speed at the flick of a switch.

More Storage: The ZFox will store 800K on its "B" drive more than twice as much as other PCs. Plus the ZFox comes with 640K of RAM, more than twice the industry standard.

More Software: Each ZFox comes with MS-DOS 2.11, GW BASIC, MyWrite, Mail Track, Spell, MyCalc, and FILEBASE. And should you require additional software you can choose from the entire PC compatible library.

Local Service: The feature the others don't talk about. Should you have a problem with the basic system it will be fixed on your site during the first 90 days*, in any of 250 cities. And after the warranty period you can call any of over 500 service centers nationwide.

Plus you get serial and parallel ports, RGB and monochrome outputs, and your choice of an amber or green monitor. If you're looking for a low-priced compatible, with extra features, quality, and local service call us at Scottsdale systems.

ZFox \$1498

And other Zenith Systems discounts start at 27% off
*on site service excludes B drive, memory above 256K



Drop Your Sox and grab a Fox Less than an empty MS-DOS Box

Our Fox system is more than the only complete 16-bit, 8088 computer for less than \$1,000. The Fox includes more storage, more extras, and more software than systems costing twice as much.

1.6 Megabytes! Dual Drives with 800K storage on each, yet the Fox is nimble enough to read and write to standard 160K, 320K, and 360K formats.

All the Extras that cost extra on other machines are included in our price. You get a full 12" 25x80, green display monitor, plus RGB color output, a printer port, a better keyboard, and a full 256K of RAM.

Free Software All the software most people will ever need including: MS-DOS 2.11, HAGEN-DOS, DOS Tutor, WordStar 3.3, EasyWriter, Spell, Mail Track, FILEBASE, CalcStar, games, graphics, utilities, and a graphics BASIC.

Strictly speaking the Fox isn't IBM compatible, but will run hundreds of the same programs including dBASE II, Multiplan, and Turbo Pascal. Because the Fox is born on a totally automated assembly line in Japan we can back it with a full one year limited warranty. For a free booklet explaining why the Fox is your best buy, call 1-800-FORAFox and leave your name and address after the beep.

The Fox \$995

(Video RAM board to run Lotus 1, 2, 3 & more \$159)

Altos



High-performance, Xenix-based, multi-user systems from Altos-world leaders in multi-user systems and applications software.

As part of TRW's marketing support group we can have your Altos system installed on your site (additional charge).

Altos systems are easy to expand, and with shared printers and hard disks are cost competitive with multiple single user systems. Call for additional pricing and availability.

486-20 \$4539
586-40 \$7249
986-40 \$8829
Altos Acc't \$2779

AT & T



Compatible PCs with something more. From the 8Mhz., 8086-based 6300 series to the new 7300 Unix PCs, AT&T is the choice for those who've got to be right. Complete systems start at under \$2,000 call for prices.



INTRODUCING THE ATARI 520ST

Imagine the power of a Macintosh for less than the price of a used Apple II. Imagine a 32-bit 68000 based color system with a 500K drive, 512K of RAM, and the GEM operating environment for under \$1,000. Atari's new systems promise to radically alter price/performance benchmarks, and we promise to have all the latest information on these exciting new systems.

Atari 520 ST ~~799.95~~ call
Atari 520 ST RGB ~~999.95~~ call

PRINTERS

YOUR CHOICE:

Star SG-10, Epson LX-80,
or Okidata 182 -
\$219

Epson, Oki, Star call
Panasonic 1091 \$269
Toshiba 1340 \$539
Toshiba 351P \$1129
DataProducts 8050 \$1099
Juki 6100 \$388
NEC ELF 370 \$395

OLYMPIA

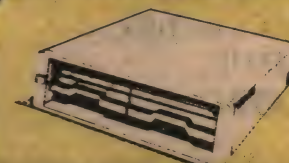


To quote PC magazine, "The (NP) printer is a sure thing..." If you're considering the purchase of an Okidata 92, or an Epson FX-80 give us a call before you spend \$50 to \$100 more for an inferior printer. Let us send you an actual print sample from the NP, and additional information on the features that make the Olympia NP the best value in dot matrix printers. **\$295**

ITT, Televideo

call

BERNOULLI



The Bernoulli Box™

- Hard disk capacity and performance
- Removable cartridge economy
- Cartridge convenience
- Flexible disk economy
- Winchester capacity
- Unparalleled reliability

10 Mb \$1839
20 Mb \$2489
5 Mb/Mac \$1379

1200 BPS Modems

Volkmodem 12 \$199
Password \$209
Prometheus \$339
Hayes 300/1200 call

TERMINALS

ADDS 3A \$429
Qume VI101 \$298
Wyse 50 \$449

Scottsdale Systems

A Division of Albrizzi Enterprises, Inc.

617 N. Scottsdale Road, Suite B, Scottsdale, Arizona 85257



(602) 941-5856



Call 8-5 Mon.-Fri.



We participate in arbitration for business and customers through the Better Business Bureau of Maricopa County.

SINCE 1980

TELEMARKETING ONLY: If you plan to stop by please phone ahead. Prices listed are for cash. P.O.'s from Fortune 1200 companies and universities with good credit add 2% / Mastercard and Visa add 3% / Arizona residents add 6% sales tax / Shipping extra / All items are new with manufacturer's warranty / Returned merchandise subject to 20% restocking fee / Personal or company checks take up to 3 weeks to clear / No COD's or A.P.O.'s. Prices and specifications subject to change / Product subject to availability. Trademarks: Silver Fox, MyWrite and MyCalc, Software Toolworks, Apple II and Macintosh, Apple Computer Inc., Atari, by Atari Corp., HAGEN-DOS, and Jackintosh, Scottsdale Systems, Ltd., Wordstar and CalcStar, Micropro International, MS-DOS, and Multiplan, Microsoft Corporation, FILEBASE, EWDP Software, Inc., dBASE II, Ashton-Tate, IBM-PC, DOS, and IBM-PC, International Business Machines.

Houston Instruments

DMP-40 \$769
DMP-29 \$1795
DMP-41 \$2340
Other models call

STB Boards

Graphics Plus II \$249
Mono Plus \$169
Chaufer \$279
RIO Plus II (64K) \$209
SIO II \$139



WRITE IT — RUN IT — ROM IT

An 8088 based single board computer that is so simple to use, you will be developing applications programs the first day!

- Choice of 8K BASIC or FORTH in ROM
- 8 channel, 8 bit A/D converter
- Two 8 bit input ports
- Two 8 bit output ports
- Time of day
- Floating point UNIFORTH avail.
- RS-232 terminal and parallel printer port
- 7 current sinking outputs rated at 500 mA, 50 VDC
- Up to 32K of user memory
- Onboard EPROM programmer

* Units start at \$279 (\$99/1000)
 * Compatible power supplies start at \$49
 OEMs, let us quote on your customized hardware and applications programming requirements.

VESTA TECHNOLOGY, INC. 7100 West 44th Ave., Suite 101, Wheatridge, CO 80033. (303)422-8088. Mastercard and Visa accepted.

MICRO COMPUTER ENHANCEMENTS

CALL 612-922-3804

Hard Drives

- 10 MB Hard Drive with Western Digital Controller \$549.00
- 20 MB Hard Drive with Western Digital Controller \$749.00

Monitors

- AMDEK 300A \$135.00
- AMDEK 310A \$155.00
- AMDEK Color 600 . . \$399.00
- SANYO COMPOSITE . \$89.00

Software

- LOTUS 123 \$299.00
- MULTIMATE \$269.00
- D: BASE III \$417.00
- R: BASE 5000 \$420.00

Call for full software selection

Peripherals

- AST SIX PAK w/64k \$245.00
- HERCULES COLOR CARD \$159.00
- DIGIGRAPHICS w/64k \$199.00
- STB CHAUFFEUR \$259.00
- PERSYST BOB BOARD \$359.00

Specials

- PL Mouse w/paint . \$149.00
- Star SG-10 Printer . . \$225.00
- Juki 6000 \$175.00
- Juki 6100 \$375.00
- GEM Draw \$99.00

ITT XTRA PC.

ITT XTRA PC IBM Compatible. Two D/S Disk Drives, 256K RAM, MS DOS, Users Guide, Monochrome Display and Adapter, Printer Port, Serial Port. from \$1,599.00

Visa, Mastercard add 3%
 American Express add 5%

Prices subject to change without notice.

MCE

MICRO COMPUTER ENHANCEMENT

P.O. Box 16153 Mpls., MN 55416-0153

Corresponding CoCo Continued from page 57

those illustrated for the PowerType. And speaking of baud rate with the PowerType, you

Switch	set	Use
1	ON	serial interface selected
2	OFF	select PowerType control codes
3	OFF	select PM operating mode
4	OFF	not used
5	OFF	*
6	OFF	* select ASCII 96 printwheel
7	OFF	*
8-10	OFF	not used

Switch	set	Use
1	OFF	no parity
2	OFF	2 stop bits
3	ON	7 data bits
4	OFF	even parity
5	OFF	parity disabled
6	OFF	inverted busy control
7	OFF	bit 8 active

10X, 4800 baud will probably be the maximum recommend- ed rate. At 9600 you'll get stray garbage characters. This may not be true with the SG-10, so check it out, as 9600 baud is almost as fast as parallel. Of course, the baud rate pokes in- to memory are the same as

will be printing at a rate of 18 characters per second, or about 180 baud, so real high speed rates are really not needed. Here's the configuration for dip-switch two of the Gemini/ STX-80 interface:

Continued on page 102

Site License Continued from page 98

Freestyle can be converted by the data manager into data base type comma delimited field records.

Features include sorting, sort-merging, record selection, substring searching, report generation, mathematical computations, totals and sub- totals, labels, envelopes, ad- ding of fields and file restruc- turing. Special features permit sorting on last names embedd- ed in a full name field and the zip code part of a city state zip field. Both European and American date formats can be sorted. Global variables can be defined to enable single keystroke entry of recurring field entries such as the same city, chapter, dates, or medical and legal terms.

The program is totally menu and prompt driven and does not require the use of any special function keys or control key combinations.

Further information about site license plans for various size groups is available by con- tacting EWDP Software, Inc., P.O. Box 40283, Indianapolis, IN 46240, 317-872-8799.

Mention that you read about it in *Computer Shopper*.



FREE!

HOW TO ORGANIZE YOUR FLOPPY DISKS- FAST!!!

Find the disks you need with- out mess or fuss. Use Weber's Disk: Files, Color Coded Labels, Jackets & ID Labels. Key-Tabs, Answer Book, KangarooPockets and more. Try these NEW IDEAS for yourself. **Send \$1.00 for new SAMPLE KIT 'B'.** or ask for a **FREE CATALOG** of organ- izing ideas. Write or

CALL NOW - TOLL FREE!

1-800-225-0044
 WEBER & SONS, INC.
 P.O. BOX 104-B
 ADELPHI, NJ 07710

PREMIUM QUALITY!

UNITECH'S

PRICES SLASHED!

DISK SALE!

WE DON'T SELL FANCY NAMES, BUT WE SURE SELL THEIR DISKS!

When you buy a name-brand disk, you pay for more than just the disk, you pay for fancy advertising, fancy packaging. But when you buy a UNITECH disk, you get what you pay for... a PREMIUM QUALITY, HIGH RELIABILITY, properly packaged, fully guaranteed disk, one that performs and looks like disks that sell for many times our price! When you buy a more expensive diskette, you aren't buying a better product.

WHO MAKES UNITECH DISKS?

They are made by top USA makers, and are not "low-end," "seconds", or "cut-rate". Large manufacturers sell thru distributors at published prices, but when sales slack off, the factory has options: they could begin lay-offs, or they could overproduce and sell the overrun at (or near) cost to Unitech. If the distributors found out they were being bypassed, and that we were getting lower prices, they'd get pretty mad. Because of this, our suppliers won't allow us to reveal their names, but when you receive them you'll recognize these as among the highest-quality nationally-advertised disks! You, the consumer winds up the big winner when you buy Unitech disks!

NOTE: UNITECH DOES NOT SELL WABASH™ DISKETTES!

WHY DO THEY COST SO LITTLE?

Fancy marketing costs a lot; when you buy a heavily advertised product, you help support a large marketing staff, giant ad budget, and extensive sales staff. Famous-label diskettes are expensive because this price-padding can add \$1, \$2 or more to the cost! Unitech disks are sold directly to you, which translates to the lowest possible price. We don't spend millions of dollars on fancy advertising, so you pay for exactly what you get, a premium quality, high reliability diskette!

IS A LABELED DISK A "BETTER" DISK?

In the under \$1 market, and according to our research, a "better" disk does not exist! A labeled disk is not necessarily better, its just labeled! Its what's inside the disk that counts!

SPECIAL
PRICING
FOR
COMPUTER
SHOPPER
READERS!

MONEY-BACK
SATISFACTION
GUARANTEE!

GUARANTEED
100%
ERROR FREE!

LIFETIME
WARRANTY!

UNITECH: THE BEST PLACE TO BUY YOUR DISKETTES

Unitech has extremely high standards of quality. The vast majority of people that buy Unitech disks are so pleased with our diskettes that they come back again and again! Word-of-mouth can make or break a mail order firm, and through our commitment to excellence in products, service, and price, Unitech has benefited from an unprecedented number of referrals by satisfied customers. Our customer-service staff enjoys selling our high quality products, and they enjoy working for a pro-consumer pro-employee company. When the rare problem occurs, these well-trained professionals give the problem their full attention until its resolved! We have received many letters complimenting our "blue-ribbon" customer service staff, and we're proud of them!

PROPERLY PACKAGED:

You can buy our disks "BULK", with no sleeve, box or label, or "BOXED" complete with a label for notations, sleeve, a re-useable box that holds ten disks, and write-protect tabs (on request).

PERFECTLY PRICED:

We buy truckloads of superior quality diskettes, inspect and package them in our own facility. Our high-volume purchasing results in the lowest prices to you. Don't confuse our high quality disks with low grade "cheap" disks, labeled or unlabeled, there's no comparison.

FAST SHIPPING:

Tired of waiting for your order? Unitech disks are always in stock! Your order is processed and carefully packaged, and within 48 hours, shipped to you via UPS!

THE BEST WARRANTIES IN THE USA:

All diskettes that we sell are guaranteed 100% error free! We're so sure that you'll be pleased with our Premium Diskettes that we offer this Premium Warranty: If you are not 100% satisfied with our disks, take advantage of our unbeatable NO QUESTIONS ASKED, 30 DAY MONEY-BACK GUARANTEE! We also back all our diskettes with a worry-free LIFETIME REPLACEMENT WARRANTY!

from
5 1/4" SS/DD 33¢
35 track

A special just for users of the Apple II, II+, and IIe! 48 tpi, 35 track.

BOXED: (#UDAD)

10/58¢ea 100/53¢ea 500/50¢ea
1k/47¢ea 5k/44¢ea 10k/41¢ea

BULK: (#UDAN)

100/45¢ea 500/42¢ea 1k/39¢ea
5k/36¢ea 10k/33¢ea

from
5 1/4" SS/DD 46¢

Our best seller, perfect for Apple II, Commodore, Atari, TRS-80, Kaypro and all other single side computers. With hub rings! 48 tpi, 40 track.

BOXED: (#UD1D)

10/75¢ea 100/67¢ea 500/65¢ea
1k/63¢ea 5k/57¢ea 10k/55¢ea

BULK: (#UD1N)

100/59¢ea 500/57¢ea 1k/55¢ea
5k/50¢ea 10k/46¢ea

from
5 1/4" DS/DD 54¢

For the IBM-PC and compatibles, and other double side, double density computers. 48 tpi, 40 tracks per side.

BOXED: (#UD2D)

10/85¢ea 100/75¢ea 500/68¢ea
1k/66¢ea 5k/64¢ea 10k/62¢ea

BULK: (#UD2N)

100/67¢ea 500/60¢ea 1k/58¢ea
5k/56¢ea 10k/54¢ea

DISKETTE SLEEVES

	10	100	500	1000
Sub 20 White Wove	5¢ea	4¢ea	3.5¢ea	3¢ea
White Tyvek	7¢ea	6¢ea	5¢ea	4.5¢ea

SHOP WITH CONFIDENCE:

No questions asked money-back guarantee on all items within 30 days after purchase. Unitech disks also carry a lifetime replacement warranty! All returns require receipt.

ORDER BY: phone or mail, telex or MCI-MAIL, pay by Mastercard, Visa, American Express, COD, or send check with your order. Include \$3 for shipping, +\$2 add'l if COD, no CODs outside USA. Canada add \$5 for shipping. Orders must include street address and phone number. Minimum order \$17 of material. Dealer inquiries welcome!

NOTE: These prices superceed all previous prices, and are in effect until our next price list is published. Items sold by Unitech are subject to prior sale. Prices are subject to change without notice. We reserve the right to limit quantities. References to manufacturers or their trademarks are made solely for the purpose of compatibility.

UNIFILE-75

Holds 75+ diskettes
Complete with index dividers
Hinged flip-top

Protect your diskettes from dust or accidental damage! Similar to the "Flip-n-file." Smoke-colored tough plastic construction. 6.5 x 10 x 6.5" h. Cat No. UNIFILE75

Price List: 1-7 \$10.00 8-23
\$7.50 24+ call!



UNIFILE-100

Holds over 100 diskettes!
Security lock with two keys!
With index dividers!
Removeable top!

Protects and secures your diskettes! Perfect for main-files, backups, and so on. Smoke-colored tough plastic 7.5 x 14 x 7.5" Cat No. UNIFILE100

Price list: 1-5 \$15.00 6-23 \$13.25



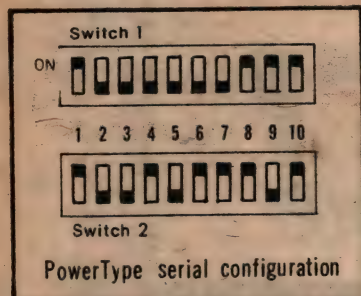
UNITECH
Call Toll Free

20C HURLEY STREET.
CAMBRIDGE, MA 02141
In Mass (617) "UNI-TECH"

(800)343-0472

Corresponding CoCo

Continued from page 100



If you would like to run your printer(s) in the parallel mode as well, there is a well made, and dependable, parallel printer interface available from PBJ Inc. for \$99.95. This may sound a bit high, but the unit also includes a real-time clock (\$59.95 without the clock), which is of true value when using OS-9. This operating system updates all files with the time and date, so as to inform you as to which is the most current, or obsolete file. Plus, the system asks you for the date and time when you boot-up. Using PBJ's real-time clock (and it's available software), all of this is taken care of automatically.

Another feature of OS-9, it's multitasking capability, means you can run two printers at once! You could be printing a long report on your Gemini in parallel, and still be printing

letters on the PowerType. If you've enough memory in your system, which is determined by the number of active system "modules," you could still be adding data to a disk file. *All at the same time!*

A parallel printer cable is fairly straight forward, as the PBJ printer card utilizes a 34-pin card edge connector for it's Centronics compatible interface. The only care you must take is to ascertain that the same wire is oriented with pin-one on both the 34-pin, and the 36-pin Centronics connector that goes into the printer. Since only 34 wires are used, two positions will be unused on the Centronics connector. If you get things flipped around, even by accident (we know!), you'll zap your printer on power-up, and it'll require a trip to the doctor.

Now the software.

Experience has shown that printer formatting can be fairly easy when using Radio Shack's Microsoft BASIC. The PRINT #2 device selector can be used from within a Basic program, or in the command mode directly. OS-9 requires a slightly different approach, and with Basic09, some options are even available. In fact, Basic09 can really ease the strain on your gray-matter a bit, once you get into it.

Let's outline the accom-

panying "procedures."

Envelope_too
a variation of the above
CoCoCorr
the main calling program
Infile
a file input utility
Getfile
a diskfile utility
Doline
a text line handler
Printline
print a line at a time
Header
paging/header utility
Letter_head
letterhead utility
Envelope
automatic envelope generator

CoCoCorr is the heart of the program, as it sets parameters that the other procedures utilize. Though we wrote these procedures to run on an 80-column screen using PBJ's Word-Pak, the printouts shown provide 64-column compatibility, so you can also use one of the available software generated high-res screens. To utilize the standard 32-column screen, just leave the leading spaces out of the text lines, and/or add spaces where necessary to provide text wrap-around on the video screen. You'll probably want to eliminate the empty "print" lines we've included between the prompts, as well.

Infile is a simple utility to allow you to input text to a diskfile that can later be read by the Getfile procedure for output to the printer. You could also use the OS-9 "build" utility, or even the "edit" line editor, but our approach eliminates any prompt on the input line, which makes it easier to keep track of a given input line's length.

Getfile is used to open files on disk, and set the parameters needed by following procedures.

Doline is used to get lines of input from your diskfile one at a time, so they may be passed as a parameter to another procedure.

Printline is used to send a line of input to the printer, and using the parameters set by previous procedures, determines what form of printing is done.

Header is a utility called by Printline, if you are running in the "manuscript" mode. Here your name, text title, and page number are printed across the top of each page.

Letter head is just that, a procedure to print a letterhead across the top of your letter. If you're using a Gemini, the output will be "semi graphic." That is, your name will be printed in double-width, five characters per inch, while your address and phone will be

printed in emphasized pica. The PowerType, of course, does not support these modes, so your name is printed in "bold" type, your address in standard characters.

Envelope is a procedure for printing envelopes one at a time. We do not recommend the use of "continuous form" envelopes for these printers, though they will work with the PowerType and Gemini 15. Their carrier paper is too wide to fit in the Gemini tractor. You may find that the envelope is too small, and the printer will be off line because of the "paper out" feature. To prevent this, just insert a blank sheet of paper under the envelope's flap, before inserting it into the printer.

Also in the Envelope procedure are some sample shortcuts using the OS-9 "Display" command. Display can be used in place of "path," so you don't have to go to the effort of "opening and closing" the printer as a device. However, if you use this method, "Display" should be loaded into memory by the program, or execution will be slowed every time it must be accessed on the disk.

As you can see, all of these programs use parameter passing, so they may also be used

Continued on page 186

★ NEW!! DISK DRIVE MANUALS ★ QUANTITY DISCOUNTS

ALL NEW DISK DRIVE MANUALS! - NOW IN THEIR 2ND EDITIONS!! Both very popular manuals are exhaustive and comprehensive, with much new material added! Written by a former Computer Science professor, New Mexico State University. Special quantity and custom-edition deals for schools, clubs, dealers:

NEW!! DISK DRIVE TUTORIAL II

The detailed theory and practical facts of floppy drives, diskettes, FDCs, interfacing, formatting, and disk-stored software. A must for the Student, Programmer, and Computer Shopper (save \$\$\$!!). Relates to drives of every manufacture, and used in IBM, APPLE, TANDY, COMMODORE, KAYPRO, TI, HP, NORTH STAR, ATARI, DEC, etc. systems. DOZENS OF LABELED PHOTOS AND ILLUSTRATIONS.

Chapter I: GENERAL. Chapter II: DISK DRIVES. Chapter III: DISKETTES. Chapter IV: INTERFACING. Chapter V: FORMATTING. Chapter VI: SOFTWARE (compatibility and protection). Chapter VII: RECOMMENDATIONS. Appendix A: ADDRESSES. Appendix B: GLOSSARY. ONLY \$17.

NEW!! DISK SERVICE MANUAL II

Disk drives MUST be periodically cleaned and lubricated, and repaired as needed. Malfunctions can be devastating in lost programs, data and text; loss of business; upset customers; down time. YOU can maintain, troubleshoot, and repair drives WITHOUT EXPENSIVE OR DELICATE EQUIPMENT OR DIAGNOSTIC SOFTWARE - often in situ and in less time than it takes you to remove, pack, ship, receive, unpack, re-install, re-configure, and retest drives sent to drive repair shops!! Shipping drives is risky! If you want the job done right, on time, and at minimal expense - DO IT YOURSELF! OVER 100 LABELED PHOTOS AND ILLUSTRATIONS OF STANDARD-BUS 5.25", 8" AND MICROFLOPPY DRIVES, AND SPECIAL DRIVES (APPLE, COMMODORE, SONY)!!

Chapter I: GENERAL. Chapter II: OPERATION ADVICE & TIPS. Chapter III: ERROR MESSAGES (and what they mean). Chapter IV: DIAGNOSTICS & TROUBLESHOOTING (how-to, step-by-step). Chapter V: MAINTENANCE. Chapter VI: SPEED ADJUSTMENT. Chapter VII: R-W HEAD ALIGNMENT (includes hysteresis and eccentricity). Chapter VIII: ELECTRONICS & REPAIRS (includes correct power/ground system wiring). Chapter IX: MISCELLANEOUS REPAIRS (T00 Sensor, T00 End Stop, Sector Index, Write-Protect, Head Loader, Compliance, Cone Assembly, Spindle Assembly, Module Assembly, Logic Boards, Spindle Motor, Door). Chapter X: DRIVE TEST STATION (professional shop plans). Chapter XI: REPAIR SHOP TECHNIQUES. Chapter XII: DRIVE ANALYSIS SOFTWARE CRITIQUE. Chapter XIII: DRIVE MODIFICATIONS. Appendix A: GLOSSARY. ONLY \$22.

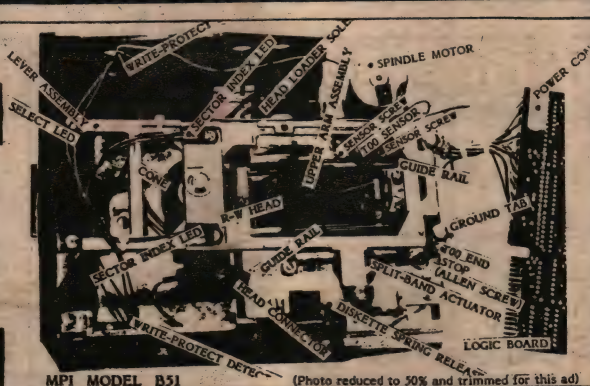
SUPER RE-INKING METHOD

New printer/typewriter cartridge ribbons are costly, and yet may produce less than 2 hours of quality copy! And are an inconvenience to order - WHEN YOU CAN FIND THEM! Now, you can re-ink your own cloth ribbons to last about 10 hours of quality use for about 50 cents and 10 minutes of effort per ribbon. Not any ink will do! We developed the right combination of clay-free ink and carrier - both commonly and inexpensively available from stores in black and 4 colors. Includes complete plans for your own cheap motor-driven re-inker. Completely described and illustrated. STOP WASTING MONEY ON RIBBONS!! ONLY \$6.

VORTEX GENERATOR

Cool or heat with a simple three-port device. One port is used for ambient air input. The second port discharges air colder than -50 deg. F; the third discharges air hotter than +130 deg. F! NO MOVING PARTS! NO FOSSIL FUEL OR ELECTRICITY REQUIRED! NO LIQUIDS OR FREON USED!! Incredible, fascinating, exciting, and little understood principle completely described and illustrated (with photos). Simple design. Guaranteed scientifically sound!! ONLY \$7.

Consumertronics Co. 2011 CRESCENT DR., P. O. DRAWER 537, ALAMOGORDO, NM 88310



HEAL THYSELF II

In 1980, PRIME TIME SATURDAY (NBC) aired "POWER TO HEAL," describing electrical and magnetic devices that accelerate tissue healing, and promote good health and growth in plants, animals and man. New medical and dental applications are being discovered. The FDA approves the clinical use of three versions of these near-miraculous healing devices. Yet, few know about them.

Designs, operation, installation and uses completely described and illustrated - circuit diagrams, voltages, currents, frequencies and waveforms. How these devices result in healing scales rates of 80% to 90%. These devices are leased by commercial manufacturers to physicians for \$2,000 each per application. You can build them for about \$50 each!

Includes descriptions of CARDIAC PACEMAKERS, PHRENIC NERVE STIMULATORS, DEFIBRILLATORS, PAIN KILLERS, SIGHT & HEARING RESTORERS, BODY FUNCTIONS CONTROLLERS, AND TISSUE REGENERATORS; detailed description of osteogenesis; how electromagnetic healing works. Extra sections on: (A) Natural body electricity. (B) Wound healing. (C) MEG devices. (D) Magnetic Necklace. (E) Orthodontical devices. (F) Mind control and automatic learning. ONLY \$9.

ELECTROMAGNETIC BRAINBLASTER

The July 31, 1985 JACK ANDERSON column, the Feb. 1985 OMNI ("THE MIND FIELDS"), etc. describe the type of device we developed as an extensive offshoot to our popular HEAL THYSELF research.

We discovered that, if you use certain electromagnetic configurations, waveforms and intensities, healing results. At other particular configurations, waveforms and intensities a powerful, invisible, silent and instantaneous research tool or weapon results!

Complete plans include two major designs, and a BASIC program listing for calculating all coil parameters. Includes brainwaves and EEGs; behavior conditioning, mind control and brainwashing; physiological, psychological, neurological, parapsychological and histological effects of the BRAINBLASTER; brain anatomy and physiology; positive stimulation (calming, healing, pleasure centers, arousal, automatic learning, bio-feedback, etc.); stimulation techniques; optimizing for waveform, frequency, modulation, duty cycle and other factors; biological electrical/magnetic properties; etc. Dozens of photos and illustrations. Extremely fascinating!! ONLY \$25.

KW-HR METERS

KW-HR METERS describes in vivid detail: How KW-HR (electric power) Meters work; how and when they are calibrated; their many error modes; why they are usually in error (often more than 10%); opinions of the National Bureau of Standards (NBS); historical developments; the ANSI C-12 Standard; results from our extensive and exhaustive meter research and testing; and customer contributions over the years for this and our many other energy publications. Also includes Demand Meters, Pole Meters, Polyphase Meters, meter creep, overload droop.

KW-HR METERS is the singularly most detailed, comprehensive, frank and utility-unbiased source available on residential and commercial electric metering with information found nowhere else! Dozens of illustrations. ONLY \$12.

COMPUTER PHREAKING!

According to the FBI, less than 5% of all DISCOVERED computer crimes result in conviction! Computer crime, or "Phreaking" costs \$ Billions per year, and is clearly one of the most dangerous - yet most profitable and least risky - of all crimes! COMPUTER PHREAKING describes in detail:

● Dozens of computer crime methods. Schemes include: Input Transaction Manipulation, File Alteration and Substitution, Unauthorized Software Modification, Code Busting, Wiretapping, Electronic Trespass, etc. Plus many actual examples, and a detailed case history based upon actual court records of a major group! Why and how Government, business and financial institutions are easily victimized by savvy Phreaks!

● Numerous countermeasure, protection and security schemes - passwords to public key encryption methods. State-of-the-art techniques. Foil even the sharpest Phreaks!

● Definitions of popular computer crime terms, including PIRACY, TROJAN HORSE, LOGIC BOMB, TRAPDOOR, GODFATHER, MUTANT, ZOMBIE, BODY SNATCHER, SILENT ALARM, CHEESEBOX, CANDYMAN, CODE 10, etc.

● Thorough analysis of why computer crimes are the least risky and most profitable of all crimes.

Learn how to become a computer crime fighter! Comprehensive, illustrated, frank. ONLY \$15.

PRINTER & PLOTTER MANUAL

Printers and plotters are costly, with little relationship between cost, quality and capability! PRINTER & PLOTTER MANUAL describes:

● The physical specifications, features, and control codes of popular printers and plotters.

● Printer and plotter interfacing, problem areas and how to correct them. Some are hard to interface. Most can be memory-upgraded to save YOU much time and expense.

● Many cost-saving tips and recommendations in the purchase and operation of printers and plotters.

● Circuit diagrams of X-SWITCHERS. Independently switch one/two printers or plotters to one/two computers without disconnecting either. Schematics of Centronics Parallel, RS-232C and 20 ma Current Loops.

● Additional sections devoted to PRINTER TYPES, PLOTTER TYPES, EXPANDING MEMORY, INTERFACING, ELECTRONIC TYPEWRITERS, RIBBON RE-INKING SECRETS, PAPER, PATCHING SOFTWARE, SPEED RATINGS, BUYING STRATEGY, and RS-232C PROTOCOLS.

● BUFFERS, SPOOLERS, MEMORY UPGRADES, ELECTROGRAPHIC, TRACTOR-FEED, DIP AND PANEL SWITCHES, DOT-MATRIX, DAISYWHEEL, INK JET, LASER, FLAT-BED, ROLLER-BED, DRUM, WORDPROCESSING, DATAPROCESSING, CAD/CAM, TIME-OUT PROBLEM, GRAPHICS TABLET, CALLIGRAPHY, PS TYPESETTING, ADVERTISING, PUBLICATION LAYOUTS, etc.

● Over 100 printer- and plotter-related terms defined, including abbreviations, control codes, and interface terms.

● The names addresses of over 100 printer, plotter buffer, interface, and photography manufacturers.

Comprehensive and exhaustive - many illustrations and photographs - ONLY \$15.

MUSIC TO YOUR EARS!! By John Williams, Electronics Engineer, former Computer Science professor, N.M.S.U. WE PAY ALL U.S. SHIPPING! (12%, \$3 min. foreign orders). Please allow 4-6 weeks for check-paid orders, else 3-4 weeks. Dealers, Clubs and School Buyers welcomed - SUBSTANTIAL QUANTITY DISCOUNTS!! Custom editions for quantity orders! PLEASE ORDER TODAY! FREE CATALOG for all orders over \$10 (else \$1).

Consumertronics Co. P.O. Drawer 537, Alamogordo, N.M. 88310

Name	_____	DISK DRIVE TUTORIAL II	<input type="checkbox"/>
Address	_____	DISK SERVICE MANUAL II	<input type="checkbox"/>
City	_____	SUPER-REINKING METHOD	<input type="checkbox"/>
State	_____	VORTEX GENERATOR	<input type="checkbox"/>
Zip	_____	HEAL THYSELF II	<input type="checkbox"/>
		ELECTROMAG. BRAINBLASTER	<input type="checkbox"/>
		KW - HR METERS	<input type="checkbox"/>
		COMPUTER PHREAKING	<input type="checkbox"/>
		PRINTER & PLOTTER MANUAL	<input type="checkbox"/>

Finding Public Domain Continued from page 58

another nice terminal program, two variations on the MODEM7 terminal program, a telephone dialer and some other assorted programs, all of which seemed to operate just fine. All I really wanted was LYNXTERM, however, and it turned out to be a better program than comparable ones I have seen selling for as much as \$100. Being the proud owner of a Lynx modem, I was anxious to get LYNXTERM, which had been adapted from STERM specifically for the Lynx.

Another of the Fax-Plus volumes includes, among other things, a California income tax program (It'll do me a lot of good in Texas). I ordered the diskette, though, because of a couple of other programs that looked useful. One, called SCHEDULE/BAS, is a very nice appointment scheduler and calendar. The other program, INVENTORY/BAS, an inventory control program, turned out to be somewhat less than spectacular. It, like all of the other programs on the disk, works, but is extremely limited in function. Again, however, I felt like I got more than my money's worth. Fax Plus, by the way, also has a CP/M library.

Another, though limited, source of public domain software is the Alternate Source library (distributed by JMC Software, 3235 Lockport Rd., Niagara Falls, NY 14305), six "flippy" diskettes full of programs for the whopping total of \$49.50. Strangely enough, most of the programs on these disks are also included in the Fax Plus library.

There are a few exceptions. One is an original Alternate Source version of tic-tac-toe. It's really very nice.

Another interesting set of Alternate Source programs not presently included in the Fax Plus library converts Model I/III files to MCI format and vice versa. These are very specialized programs, but could come in very handy if you happen to subscribe to MCI.

Among the other programs unique to the Alternate Source collection is a bulletin board system and some utilities.

The National Software Lending Library (507 Race Street, Cambridge, MD 21613) is also a library to keep an eye on. It has libraries for the IBM PC, Apple, TI 99/4A and Commodore at the present time, but hopes to release a catalog of TRS-80 public domain software in the future.

"We are looking for donations for the TRS-80 library," said Sheryl Nutting,

president of the library. "We would be willing to exchange software with users groups."

Ms. Nutting said that contributed software undergoes a thorough screening and that when the library has a sufficient collection to market, a users guide and catalog will be published.

Another good place to turn is your local Tandy users group. In my area, it's called

the Microcomputer Users Association (P.O. Box 16295, Houston, TX 77222). The group is presently undergoing some reorganization, but has maintained its software library (although, at times, this has consisted of being stored in a computer paper box in the back of the president's closet).

During MCUA's resurrection, a number of programs have been donated to the club's

library, including all of the Alternate Source diskettes and several Fax Plus volumes. The MCUA collection numbers around 30 single-sided, single density diskettes, including several disks full of Orchestra 90 files, a few Model 100 files and some original programs by member of the organization.

MCUA, which has been around since 1978, offers the diskettes free to members

(membership is \$20 per year), asking only for a blank disk in exchange for each ordered. Non-members can get the diskettes, as well, but at \$6 for each. Before you go firing off a letter to MCUA, you should check your local area for a users group. I'd like to be able to tell you to call your neighborhood Radio Shack, but

Continued on page 105

Precision Data Products
Complete Line of Quality Supplies for Your Computer

**TOLL FREE
ORDER LINE
800-258-0028**

**FOR INFORMATION CALL
616-452-3457**

INTRODUCING

STATE-OF-THE-ART MAGNETIC MEDIA

FROM ONE OF THE TOP 5 DISKETTE MANUFACTURERS IN THE WORLD

5 1/4" DISKETTES

- With Hub Rings
- With Write Protect Tabs
- With Static-Free, Dust-Free Envelopes
- With User ID Labels
- In Factory Sealed Poly Packs

RIGOROUS QUALITY CHECKS ENSURE THEIR RELIABILITY

69¢

**Single Side
Double Density**



79¢

**Double Side
Double Density**

**INDIVIDUALLY CERTIFIED 100% ERROR FREE
COVERED BY A FULL LIFETIME WARRANTY**

MEET OR EXCEED ALL INDUSTRY STANDARDS: ANSI, ECMA, IBM, ISO

READY FOR IMMEDIATE

SHIPMENT — ALL ORDERS

SHIPPED WITHIN 24 HOURS

Minimum quantity: 50 diskettes. Quantities less than 50, add 10%. Discount for 300 or more diskettes.

Shipping and Handling: \$4.00 per 100 diskettes. Reduced shipping charge for larger quantities.

C.O.D. add \$4.00. Cash or certified check.

MI residents add 4% sales tax.

Prices subject to change without notice.



Precision Data Products

P.O. Box 8367, Grand Rapids, MI 49508

(616) 452-3457 • Michigan 1-800-632-2468

Outside Michigan 1-800-258-0028



C.O.D.

Telepatch — A Telewriter-64 Enhancement

by Tom Garcia

The most popular non-game program for CoCo has always been Cognitec's Telewriter word processor. It's an amazing program in that it has been around for a long time and it was virtually bug free from the very first release. You could almost say that what VISI-

CALC did for Apple the Cognitec program did for CoCo. The software greatly increased the popularity of the hardware. Not that there wasn't some room for improvement. My article in the May 1984 *Computer Shopper* was a small step in that direction. Another more recent effort is the WIZARD enhancement (see review

in the September 1985 *Computer Shopper*). Wizard is a product that modifies Telewriter's text font, among other things. Now there is another whiz-bang add-on program available called TELEPATCH. It was written by a Canadian, Bob van der Poel.

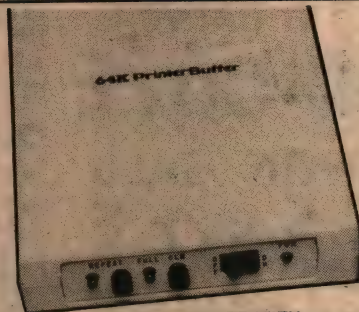
When the package arrived I decided to give it the "acid"

test, ie., try to get it up and running without reading any of the instructions. Dumb, but educational. All I knew was that the disk contained a Telewriter Enhancer program, or programs, because that's what it said on the cover of the manual. Looking at the program titles (via a DIR command) I discovered that there

were three BASIC programs and three machine language programs. So, I ran the first BASIC program, called PATCHER/BAS. Lo and behold, by following a series of on-screen prompts I was able to modify my original copy of Telewriter-64 to the "improv-

Continued on page 106

64k Printer Buffer



- Assembled & Tested
- Centronics/Parallel Port
- Multiple-Copy Capability
- Auto Diagnostics
- Clear Button
- Holds Over 40 Pages (double spaced)
- Repeat Function

\$89.95

30-day WARRANTY
Dealer inquiries welcome

NAME _____
ADDRESS _____
CITY/STATE/ZIP _____
QUANTITY _____ @ \$89.95 + 2.50 ea. Shipping/Handling = _____
☐ CERTIFIED CHECK OR MONEY ORDER ENCLOSED
☐ PERSONAL CHECK (allow 2 weeks)

Reasonable & Commercial Sales, Inc.

8115 SE 82nd Avenue • Portland, OR 97266 503-775-3939

Double Duty Continued from page 58

F1, F2 and F3 in conjunction with the CAPS key are used to switch back and forth between partitions. Moving from one partition to another effectively stops the program in the partition you are leaving. It will be exactly as you left it when you return. A bad problem can occur if you have different versions of TRSDOS 6.x and use one to boot Double Duty and another to run the program in drive 0. Be sure that you are using the same versions on both disks. I have a headache with this program when switching back and forth using programs that require two disks to run. You end up swapping disks back and forth

somewhat like I use to when making a backup with only one drive. I thought I had put all that behind me!

Don't count on moving data from one partition to another. Its all in how the ads are written. Data is accessible in both partitions but it is *not* moveable. Try copying it down and retyping it in the other partition. That's how it is moved. R/S missed a bet here. If they had the same capability to move data that SUPERLOG4 (see other review this issue) has they would have had a much more usable program. I can see other uses for Double Duty in programming that would be beneficial. When I develop form letters in ALLWRITE it is nice to switch back and forth between the data file and the actual form

letter. This would save loading and unloading the documents as the small changes are made that "tunes" the two files to what I want them to be and they are running as they should.

All in all Double Duty isn't what I thought it would be. The program runs without any bugs and the docs are good but it misses the mark for my use. Don't run out and buy it (as I did) unless you have a specific application that needs Double Duty.

Double Duty
\$69.95
TRS 80 Model 4, 128K and one drive
Tandy/Radio Shack
One Tandy Center
Fort Worth, TX 76102

california MICRO MAINLINE

1520 Monterey Blvd. #C, Hermosa Beach, CA 90254

SYSTEMS

IBM PC 256K, 2 floppies \$1585
IBM XT 256K, 1 drive, 10 meg 2699
APPLE PROFESSIONAL SYSTEM
Ile, 128K, 80 col. card, tilt mon.,
duo disk/cont \$1335

DISK DRIVES

TANDON
TM100-2 360K floppy \$ 95
TEAC
55B 360K floppy 95
SEAGATE
10 meg hard disk w/cont \$ 625
20 meg hard disk w/cont 795

BOARDS

PARADISE
Five Pak \$ 147
Modular Graphics Card 265
SIGMA DESIGN
Color 400 \$ 499
Maximizer 209
PERSYST
BoB Board \$ 365
HERCULES
Color Card \$ 160
Graphics Card 295

PRINTERS

STAR MICRONICS
SG10 120cps 80 col \$ 227
SG15 120cps 136 col 385
SD10 160cps 80 col 351
SD15 160cps 136 col 475
EPSON
FX80 \$ 356
FX100 485
PANASONIC
1090 80cps \$ 199
1091 120cps NLP 249
1092 180 CPS NLQ 435
OKIDATA
ML182P 120cps \$ 224
ML192P 160cps 354
ML84P 200cps 665
JUKI
6100 Daisywheel 18cps \$ 375
6300 Daisywheel 40 cps \$ 685
TOSHIBA
P1340 144cps NLQ \$ 565
P351 288cps NLQ 1219

ACCESSORIES

64K Memory Upgrade 150ns \$ 9
8087 Math Coprocessor 119
256K Memory Upgrade 150ns 45
Keytronics KB5151 keyboard 185

MONITORS

TAXAN
Comp. Green/Amber- \$ 109
115/116 127
TTL Green/Amber-121/122 425
RGB sw/Mon. 425 495
RGB Ultra High Res. 440
PRINCETON GRAPHICS
Max 12 TTL Amber \$ 176
HX 12 RGB Hi-Res 445
SR 12 RGB Super Hi-Res 565
AMDEK
V300G Comp. Green \$ 124
V310A TTL Amber for IBM 155
Color 500 Comp. color 335

MODEMS

ANCHOR AUTOMATION
Volkmodem 12 \$ 175
Mark 12 215
Signalman Express 255
HAYES MICROCOMPUTER PRODUCTS
1200B Internal w/Smartcom \$ 375
2400 Baud Smartmodem 639

SOFTWARE

LOTUS DEVELOPMENT CORP
1-2-3 \$ 290
Symphony \$ 430
Jazz 357
MICROSOFT
Word \$ 235
Multiplan 124
MICROPRO
Wordstar \$ 185
Wordstar 2000 265
Wordstar 2000 + 305

CALL FOR PRICING ON ITEMS NOT LISTED ABOVE

CALL: (213) 372-6246

We'll meet or beat any advertised price! We accept Visa, Mastercard, certified or cashier's checks, wire transfer. Allow 10 days for personal checks to clear. Availability and prices subject to change without notice. Minimum shipping charge is \$4. Prices advertised are cash prices. Please include a phone number. California residents add sales tax.

Finding Public Domain Continued from page 103

chances are they won't be able to help you. Although MCUA has been around for seven years most Houston area Radio Shacks are unaware that such a group even exists. Alas, your neighborhood Radio Shack will probably be on about the same level of enlightenment.

Where Fax Plus and the Alternate Source collections are handled on a purely business basis, users groups use their libraries as an attraction for new members and as a resource for current members.

"A club library allows the members to pool their programming for teaching purposes as well as making available public domain software at a reasonable cost," said Ben Mitchell, president of MCUA. "Any club library is going to be an attraction. It can be a nucleus for the club."

Mitchell said that some new members are surprised that public domain libraries do not have more applications software.

"I would not stress that to join a club that you will get access to a great deal of applications software," said Mitchell. "Most of that is going to be copyrighted and, as far as MCUA is concerned, under no conditions will copyrighted software be distributed without the author's permission."

There are certain risks involved when ordering public domain software that you should be aware of. First, there is no support for it. Distributors of public domain software charge you only for the "service" of copying and sending you the diskettes, not for the software, so if the public domain accounting program you are using suddenly blows up during an IRS audit, all you can do is sit down and cry, 'cause there ain't nobody out there to tell you what went wrong.

Ernie Stephanik, manager of Fax Plus, said that his company doesn't receive a lot of calls concerning problems with the distributed software, but that his staff will try to help customers.

"There is as much documentation as we have on the disks," said Stephanik. "We'll try to answer questions if it's a program we are familiar with. I think most people recognize that with public domain software, you're on your own."

Another problem occurs when parts of a program are missing. For example, I got real excited when I found a diskette with a program to convert Model III Basic to Model 4. Upon executing the program, however, I discovered that half of the code was in Never-Never Land. This is also

often the case with the documentation files. More than once I have tried to load a documentation file into my word processor, only to find it cut off in the middle.

If you're like me, you'll also come across a number of programs with no apparent function and no documentation, a common complaint shared with the vast library of CP/M public domain software as well.

Support, though indirect, is one thing that CompuServe's TRS-80 Professional SIG has over software libraries. If you have problems with any of the over 200 files in the SIG's data base, you can get help from SIG members nation-wide. At around \$6.25 per hour, though, it can get pretty expensive.

Most of the available public domain programs I've found for TRS-80s have been for the

Model I and III. There are a few Model 4 programs thrown in, but virtually nothing for the II, 12 and 16. There are even a few Model 100 programs (on Model I diskettes), but for the most part, you'll have to rely on CompuServe's Model 100 SIG for freebies. Distribution of 100 programs on cassettes is just too big a hassle for most people and not enough users own disk interfaces to make that route practical. The dif-

ficulty in distributing Model 100 software could be a contributing factor to the enormous SIG library of over 1,100 files.

With all those TRS-80 users out there, the public domain software had to surface sometime. With the future of the TRS-80, and 8-bit computers in general, somewhat hazy, it's rather consoling to know that we are not alone.

Better late than never. ●

FREE SHIPPING Quality Bulk Disks

SS/DD

69¢

As low as:

79¢

DS/DD

Everything Included

At DataTech there are no hidden charges, our advertised price is our delivered price. Here's what you get:

- High Quality Disk
- Re-inforcing Hub Ring
- Tyvek Sleeves
- Write Protect Tabs
- User ID Labels
- Free Shipping
- Lifetime Warranty

TOP QUALITY

These are first quality disks by a major manufacturer — no seconds or cosmetic imperfections. You save because there are no packaging or advertising costs, not because these are somebody else's rejects. Each disk is tested on and between tracks at levels 25% more critical than industry standards. Total surface testing assures a 100% error free disk.

OUR GUARANTEE

If you are not satisfied with our bulk disks, we will pay the shipping costs for you to send them back. We will exchange them for another product or refund your money.

OUR PRODUCT #	DESCRIPTION	50 DISKS	100 DISKS	300 DISKS	500 DISKS	1000 DISKS
11097	SS/DD Bulk Disks	.97	.79	.76	.74	.69
11107	DS/DD Bulk Disks	1.07	.89	.86	.84	.79

Prices are per disk. Please order in multiples of 25. Minimum order is 50 disks.

1-800-742-2200, ext. 100

HOW CAN YOU LOSE?

Our ironclad guarantee is better than the guarantee of most manufacturers. So who needs a box and a brand name? We give you the same product you would buy in a box, but our buying power saves you money, and our guarantee gives you 100% quality assurance. Now is the time to try our quality bulk disks. How can you lose?

- PRICING:** Additional discounts are available for larger purchases. Different products may be added together for maximum quantity discount.
- ORDERING:** Use our toll free order line! The number is 800-742-2200, extension 100. This number is for ordering only. —the girls cannot answer questions. For questions and special orders call (717) 564-1400. When you order, please order by product number.
- SHIPPING:** We pay the shipping on all orders. All orders shipped UPS ground unless otherwise requested.
- PAYMENT:** We ship all orders COD. We also accept MasterCard and Visa. There are no additional charges for COD or credit cards. We offer 3% discount for prepayment.

DataTech
DISTRIBUTORS

DISKS - 69c

**Foolish to pay more.
Dangerous to pay less.**

- QUALITY MEDIA
- LIFETIME REPLACEMENT GUARANTEE
- HUB RINGS • TYVEC EPS.
- WRITE PROTECTS

BLACKSHIP
COMPUTER SUPPLY

	1+	50+	100+	250+	500+	1000+
5.25" 52500	.95	.85	.75	.75	.75	.80
5.25" 03000	1.10	.95	.85	.80	.75	.75
PC FORMATTED	1.35	1.25	1.25	1.25	1.10	1.05
AT 1.2MB	3.80	2.80	2.40	2.30	2.10	2.00
3.5" 10 (For Mac)	2.70	2.00	1.90			
3.5" 20 (For HP)	3.50	3.25	3.15	CALL	CALL	

Add \$3.00 shipping and handling per 100 Diskettes. COD add \$1.95.
(CA residents add 6.5% sales tax)
VISA/MC/COD

P.O. Box 883362
San Francisco, CA 94188
In California 415-550-0512
USA orders **800-431-6249**
In Canada 403-428-6229

Telepatch Continued from page 104

ed and made better" version. And my new program ran too! A quick look at the modified Telewriter soon convinced me that I was really on to something. For instance, the new loader, or boot program, called T/BAS (it replaces U/BAS) has simple provisions built-in for default modification. You can easily change such menu items as Justify on/off, the Epson /Ok/Lf option, Characters, Margins, Baud rate, Disk drive step rate, etc. As received, standard defaults are in place so you are not forced to make any changes initially.

The next big improvement that I noticed (hallelujah!) is that when moving from the main menu to the disk I/O menu the switch occurs in a half second because the disk I/O module is now in memory, it doesn't have to be loaded from the disk each and every time that you call it. The I/O menu can be toggled back and forth between ASCII and binary with a single key press.

The default setting in T/BAS will determine which setting is your "automatic" or first-up I/O menu in the module.

By now it was time for me to read the instructions, 12 pages plus an addendum. Everything in the documentation is very straightforward and understandable with one minor exception, which I will get to later. First, there is guidance as to how to use the program to modify your disk Telewriter-64. As I found out, it's so simple a task that the instructions aren't really needed. The job involves three disks: TELEPATCH, Telewriter, and a blank formatted disk. Nine swaps (in drive 0) and the job is finished.

One thing that should be pointed out--The enhancements cost you some memory. Putting the disk I/O in RAM is probably the main cause of the extra overhead. The unmodified Telewriter gave me 24896 free bytes at boot and the TELEPATCH program lists a 20793 character memory. It's not a problem in the big majority of my word

processing. This article, for instance, uses less than half of the 20K buffer.

The next few pages of the instructions explain the added features available in the modified version of Telewriter. Here are some of them: True move, ie., a block of text moved to a new place in a document is automatically deleted from the old spot. A new command, <CLEAR> <T> accomplishes this. In case you want to do the original (non-destructive) move with <CLEAR> <C> that is still an available option. Now there are visible carriage returns, small triangles, on the screen. But, only if you want them. The return markers can be set on or off with a <CLEAR> <I> command anytime that you desire to add or delete them.

Key beep can be toggled on or off. The beep length and tone is set in the T/BAS program. CoCo's keys will now repeat if they are held down for more than a half second or so. Both the initial delay and the repeat rate are adjustable. The combination of <SHIFT> and an arrow key has been speeded up and this rate can be adjusted in T/BAS.

An option that is very interesting but I'm not quite sure about using on a regular basis is the overstrike editing mode. Telewriter's original version has a text insert capability, that is, new text placed in the middle of a paragraph pushed everything in front of it further forward. Now you can type new text right over the old text. My problem is that it's hard to teach an old dog new tricks. <CLEAR> <O> toggles the feature off and on and the cursor changes slightly to let you know which mode you are in. The cursor changes slightly to let you know which mode you are in. The cursor change is so slight that you won't notice it, however.

Next in the instructions you will find the details about each and every modification of T/BAS that you might want to make. The only item that isn't too clear is the part that tells you how to set up the "page number" section of FORMAT for something other than zero, as a default. This instruction gets involved with most significant bit and least significant bit, without explaining what they are or why you should want to know about them. An example would have been better but two formulas are given instead. I played with it for a few minutes and figured it out (set 1sb for the default page number that you want). Also, if you set the key repeat rate at its fastest (1) there may be some problems using the

Continued on page 107

STOP
paying an arm and a leg
for your computer
supplies and
accessories

HACKERS

MAKES CENTS FOR YOU
WE SCOUR THE WORLD'S MARKETS SO
YOU, TOO, CAN DISCOUNT THE
DISCOUNTERS AND
SAVE! SAVE! SAVE!
IT'S ABOUT TIME

Mark The Quantity You Want Next to Items, Enter Totals, Payment, and Shipping Information, and Mail in Ad.

QTY	DESCRIPTION	YOUR DISCOUNT PRICE
—	DISK NOTCHER, square hole, built-in guide	4.75
—	DISK FILE, flip-top, holds 70 5 1/4" disks	8.75
—	DISK FILE, flip-top, 100 5 1/4" disks, w/lock	12.75
—	DISK FILE, bin-type, 100 5 1/4" disks, w/lock	11.95
—	DISK FILE, flip-top, 50 3 1/2" disks	11.75
—	LIBRARY CASE, choose 5 colors, holds 10 5 1/4" disks	2.95
—	CABLE, specify: Apple II+, e, c/to printer, 6'	7.50
—	CABLE, IBM PC/to printer, 6'	12.95
—	CABLE, specify: IBM or Apple, joystick extension	3.95
—	CABLE, IBM PC to hard disk drive	11.25
—	TEMPLATE, flow chart, 3"x6", ANSI symbols	2.00
—	TEMPLATE, flow chart, 4"x10", ANSI symbols	3.25
—	JOYSTICK, incl. IBM, Apple, Commodore adapters	29.95
—	JOYSTICK, specify: IBM, Apple II+, e, c	17.95
—	FAN, Apple, 2 plugs, system switch	27.50
—	POWER STRIP, 6 plugs, switch, SURGE, circ. breaker	18.50
—	DUST COVER, IBM, fitted, see-thru, 2-pc	7.95
—	DUST COVER, Apple, II+, e, fitted, see-thru	4.95
—	DUST COVER, Commodore Vic/64, fitted, see-thru	5.50
—	MONITOR TURNABLE, 12", 360° turn, 12 1/2" tilt	12.50
—	MONITOR TURNABLE, 18", 360° turn, 12 1/2" tilt	18.95
—	MODULATOR, Apple interface to TV	8.95
—	HEAD CLEANING KIT, 5 1/4", use 15 times	4.95
—	CABLE CLAMPS, self-adhesive, 3/4", 10 pcs	5.50
—	COPY HOLDER, flex arm, edge clamp, metal	17.50
—	COPY HOLDER, desk, vinyl-covered	8.50
—	ANTI-STATIC SPRAY, large can	6.95
—	DP/WP RULER, acrylic, 15", many scales	2.95
—	MAGNIFYING RULER, Data Processing, acrylic, 15"	5.50
—	COMMANDS TEMPLATE, IBM, specify major software program	5.95

SHIPPING AND HANDLING	S & H
SUBTOTAL	
\$300 & Up	FREE
250 - 300	\$1.00
200 - 250	1.50
150 - 200	2.00
100 - 150	2.50
UNDER \$100	3.00

ADD UP THE ABOVE ITEMS
SUBTOTAL
SHIPPING & HANDLING
COD/OFFSHORE
TOTAL



YES SEND ME THE ITEMS MARKED ABOVE

- ☐ PERSONAL/CO. CHECK ENCLOSED
☐ M.O./CASHIER'S CHECK ENCLOSED
☐ VISA ☐ MASTERCARD EXPIR. DATE

CARD NO: _____

SIGNATURE: _____

P MY NAME IS: _____

R MY SHIPPING ADDRESS IS: _____

N MY CITY IS: _____ STATE: _____ ZIP: _____

Please Remember To Add \$8.11 H Under \$300. COD Add \$5.00. Alaska, Hawaii, APO/FPO Add \$5.00. International Add \$15 Plus Actual Shipping Per Instructions. Calif. Residents Add 6 1/2% S.T. Allow 2 to 4 Weeks To Clear Payment.

MONEY BACK GUARANTEE

Any purchase from HACKERS which does not satisfy may be returned for replacement, credit, or refund for 30 days after shipment. (Must be in new resalable condition, all packaging included and trans. prepaid.)
120-Day Warranty

HACKERS

2601 CARNEGIE LANE
P.O. BOX 1730
REDONDO BEACH, CA 90278
Discount Headquarters For Computer
Supplies & Accessories

HONEYBEE THE IBM COMPATIBLE ALTERNATIVE!

HONEYBEE XT 64K BASIC COMPUTER \$550

- A. Motherboard with 8 slots, 8 ROM sockets (comes with one BIOS ROM), fully socketed, 64K RAM installed, socketed for 256K RAM.
B. 135-w switching power supply similar in style to the IBM power supply. Comes with cables to power four floppy drives or hard disks.
C. Comes with large front opening for 2 full height or 4 half height drives.
D. Keyboard with power, caps lock, and num lock lights.

HONEYBEE XT COMPUTER with 2 floppy drives \$830

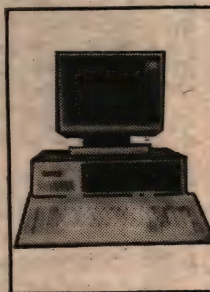
Same as above plus 256K RAM, floppy disk controller card, and two half height DS DD 360K disk drives.

HONEYBEE XT MONOCHROME COMPUTER SYSTEM \$1170

Same as above plus monochrome card, 12" green or amber TTL monitor, and multifunction card. The multifunction card contains a parallel port, serial port, battery backed clock/calendar, game port, and sockets for an additional 384K of RAM.

HONEYBEE XT MONOCHROME HARD DISK SYSTEM \$1570

Same as above except one floppy and one 10-meg hard disk.



IBM Compatible Peripherals

Disk Controller Card (IBM comp.)	\$60
Color Graphics Card (IBM comp.)	\$105
Monochrome Card (IBM comp.)	\$90
Monochrome/Graphics & Printer Card (Hercules comp.)	\$135
MFC Card, AST comp. 6 Pack with Game Adapter, OK	\$125
Parallel Printer Cable 6 feet	\$15
64K 9 150 nS memory chips, installed or in a tube	\$9

Apple Compatible Peripherals

Z80 Card for II+ & IIe (Microsoft comp.)	\$40
80 Column Card with inverse and cable	\$65
Soft Switch (Videx comp.)	\$15
Extended 80 Column Card for IIe	\$40
Graphics Printer Card with cable (Grappler & comp.)	\$50
16K Ram Card with cable	\$35
128K Ram Card (Titan, Saturn comp.) with 3 disk & manual	\$100
Disk Controller Card (Apple comp.)	\$38
Disk Drive half ht. direct drive (Chinon or sim. to TEAC 55A)	\$110
Xidex Disks DSDD	\$10/box
Taltron Modem II 300 baud (sim. to Micro Modem IIe)	\$120
Fan lit power switch, 2 switched outlets, surge protected	\$29
RF Modulator rf mod. cable & TV switch	\$10

6 Month Warranty

All cards are of highest quality

Call for latest prices

24 HOUR ORDER LINE

Dealer inquiries welcome

Call or write for Complete Price List and Data Sheets

LANTON COMPUTER

S • Y • S • T • E • M • S

37 Juneau Boulevard, Woodbury NY 11797

(NYS) 800-632-4441 — (Outside NYS) 800-645-4441

For customer service and order status, call (516) 692-7176

Shipping and handling charge \$5.00 per order. 2nd day air \$5.00 additional. COD charge \$3.00 per order. Allow up to 3 weeks for personal checks to clear. Money orders, certified checks, and COD orders shipped immediately. Please include phone number. Prices and availability subject to change without notice. NYS residents add sales tax.

Telepatch

Continued from page 106
<CLEAR> key and getting functions such as <CLEAR> <A> [align] to work properly. Just use a slower repeat rate such as 5 or 7.

I have not covered everything available but you will find other enhancements in the area of saving, reading, killing, etc., that you will like and that will come in handy as you get familiar with them. The new version of Telewriter that TELEPATCH produces is very easy to use if you are already up and running with the old Telewriter. A brand new user should probably play with the un-enhanced Telewriter for a short while before doing the modification, if only to better appreciate the improvements after they are made.

My next to last comment concerns the initial menu page. As enhanced Telewriter is strictly for disk use the parts of the old menu having to do with tape operations have been eliminated, cleaning up the page considerably. Strangely, if deleted tape commands are made, such as <S>ave, the functions give the impression that they are working.

A last comment now, and it concerns a 'bug' in the disk I/O menu that I found in my copy of TELEPATCH, version 2.1. It may have been corrected by the time you read this. The program */BIN is machine language but if you hit for BASIC while in the menu */BIN can then be LISTed, as though it were written in BASIC. Look at LINE 130, you will see a TAB(20) in that line. It should be TAB(19) and if it isn't use a ZAP program to write the change to the disk. Otherwise, the I/O menu page, while still working, will sometimes look a little odd due to the insertion of an extra blank line near the bottom of the screen.

A free program called TSPool/BAS comes on the disk. If you have any interest in saving a binary Telewriter file as a formatted direct access file (DAF) this program will do the job for you. See Chapters 8 and 9 of the Color Computer Disk Systems Owners Manual

for more on DAF's.

This program is on my list of highly recommended software. After trying it out I would never go back to the standard Telewriter. The super fast jump to disk I/O makes it worth the money for me. TELEPATCH turns a great word processor into an outstanding one and at \$19.95 the price is right.

TELEPATCH for Telewriter-64 on disk is used with the 64K Radio Shack Color Computer. One or more disk drives required. \$19.95 plus \$3 shipping & handling. Spectrum Projects, Inc., P.O. Box 21272, Woodhaven, NY 11421.

What a Treat!

COMPUTER SHOPPER



at Special
Holiday Rates.
See Center.



Buffalo enterprises

MAILING LISTS

3000 User Groups.....	\$150.00
3000 Computer Dealers.....	150.00
1700 Software Suppliers.....	75.00
1000 Hardware Mfgs.....	50.00
12,000 Apple Owners.....	\$45/M
12,000 TRS CoCo Owners.....	\$45/M
300 Computer Publications.....	40.00

All lists are in zip code order on pressure-sensitive labels. Shipping is included and prices are for one time use only! Include check, money order or M/C — Visa information. California residents add 6% state tax.

— Send for FREE Catalog —

P.O. Box 29 • Sebastopol, CA 95472 • (707) 823-3239



ARNOLD COMPANY



CALL 214-576-2291 FOR SUPER FAST SERVICE!

5 1/4" POWER CONNECTORS!

FOR ALL 5 1/4" DRIVES:			
1	10	50	100
\$1.25 ea.	\$1.00 ea.	\$.89 ea.	\$.79 ea.
5 1/4" male connector on 2 ft. cable .....\$1.75			
"Y" KIT ADAPTS YOUR SINGLE DRIVE P.S. FOR 2 HALF-HEIGHTS.			
Includes 2 male connectors, 1 female connector and wire.			
1	10	25	50
\$3.75 ea.	\$3.50 ea.	\$3.35 ea.	\$3.10 ea.
8" DRIVE POWER CONNECTOR SETS:			
Set of 2. Specify your drive.			
1	10	25	50
\$2.75 ea.	\$2.50 ea.	\$2.25 ea.	\$2.00 ea.

TI99/4A KEYBOARDS!

UPGRADE your Timex/Sinclair. We provide detailed documentation. FREE with your keyboard! Get these while the supply last. Light grey, new\$5.99 including documentation.

TI-99 RF MODULATOR

Can be used with most any computer with composite video output and a standard TV. Inputs marked for easy conversion. FACTORY FRESH - not rejects\$6.99
TI 99-4A new sealed cassette cables\$3.75

NUMERIC KEYPAD BY HI-TEK

Add 10 Key numeric entry ease to any computer! These unencoded keypads feature each key terminated in its own switch. No Matrix to reconfigure. High quality NEW keypads have a great feel! Also has =, +, -, space, enter and comma keys - don't delay!\$6.95

RAM	4164	150 NS	9 for \$10
	41256	150 NS	9 for \$45

OTHER GOOD BUYS!

CENTRONICS Male Ribbon Mt. Conn.	\$5.95
DB-25 FEMALE Ribbon Mt.	\$3.99
7805 or 7812 Voltage Regulators	\$.75
DB-25 F/F gender changer	\$.13
DB-25 M/M gender changer	\$.13

COMPUTER AC CORDS

INDUSTRY STANDARD AC CORD FOR IBM, etc.		
New, 8 ft. cords, list \$4.95	each	\$2.50
Also Chassis Mt. Socket		\$.50
1	10	25
\$2.50 ea.	\$1.90 ea.	\$1.50 ea.

COMMODORE 64

Replacement power supply	\$ 15
Limited quantities - order now!	
VIC-20 games, 3 cartridge assortment	\$7.50

TERMS:

Shipping \$3.00 per order unless otherwise stated. C.O.D. add \$1.90 extra. Texas residents add 5.125% tax. Certified Check or Money Order shipped same or next day. Personal checks may be held 10 days. C.O.D. orders welcomed. Give us a call. (214) 576-2291. We ship UPS ground. Air available at extra charge. Give us a call for fast friendly service. FREE flyer sent with each order.

ARNOLD COMPANY - Computer/Electronic Supply - 214 Hill Lane, Red Oak, Texas 75154

TRS-80 MODEL III CPU BOARDS

LIMITED SUPPLY!
ORDER TODAY!
NEW LOWER PRICE!

TANDY MODEL III Mother Boards for your Z-80 computer needs. Boards are surplus and come with Z-80, Character rom and other components. Each is complete except ROM/RAM. (Tandy rom sets are available from us.) One punch hole in each board is easily repaired. Not junkers that have had all the socketed chips removed! Each is a rebuildable unit. Build this Z-80 System today! Documentation furnished\$19.50
10 day no risk money back offer on each!

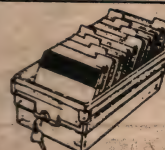
MODEL III PARTS BOARDS:
These have a few other chips missing or were more damaged and are offered for parts only at a reduced priceeach \$13.00
with purchase of our \$19.50 board.

XEROX 820-1

COMPLETE 64K CP/M BOARD with ROM/RAM and CPU. (Less 1771 disk controller.) These are NEW Surplus boards (as is). All appear in very good condition! Limited supply - so order now!\$79.95

BULK DISKETTES

Major brand DSDD with envelopes	50 for \$49
SSDD with envelopes	50 for \$47



BULK DISKS WITH FREE LOCKING CARRIER

Manufactured by VERBATIM for software duplication. Prime single side double density diskettes. With envelopes.

Buy 100 SSDD disks for \$99.00 and get a FREE Locking File Box worth \$20.00.

Double side, DD available for \$9.00 more. These even work in the IBM XT! Limited to the supply on hand - so order now!

X turbo BOARD

- 4.77 or 7.5 mhz speed
- 8088 CPU
- 8 slots
- IBM footprint
- Includes 256K

\$399

★ Arnold Company ★
YOUR BEST CHOICE
Quality Products
Great Prices
Prompt Shipping

COMMANDER XT 1 Meg IBM XT Maximum Capable

8808 CPU, 8 slot motherboard. Same size as IBM XT. Uses 64K or 256K RAM for 1 Meg + on board. (640K addressable.) Superior quality double-sided board. Runs PC-DOS, CP/M-86, Lotus, Flight Simulator, etc. Completely assembled and tested board with BIOS and 256K.\$289
Complete systems available.



STANDARD XT COMPATIBLE motherboard. Assembled and tested with BIOS and 256K	\$259
BARE standard IBM-XT compatible board with manual and parts list	\$ 39
BIOS ROM - highly compatible	\$ 19

135 Watt P.S. and Case



Superior Quality control insures our 135 watt IBM XT hard-disk-ready power supply will give you years of quiet and cool reliability. Side switch unit exactly replaces original IBM power supply. Order yours today with confidence!\$ 99

150 watt IBM XT replacement power supply give you the same quality plus extra power\$115

Attention to detail makes our superbly crafted IBM XT flip-top system case the best choice. Includes all hardware. Faceplate is verrrrry close to the same as IBM. Fits IBM PC/XT and exact compatibles using side switch power supply\$ 85

ORDER BOTH AND SAVE!

135 watt power supply & super system case	\$179
150 watt power supply & super system case	\$189
Add \$4.00 extra shipping for each case - they are heavy!	

IBM PC/XT COMPATIBLE KEYBOARDS

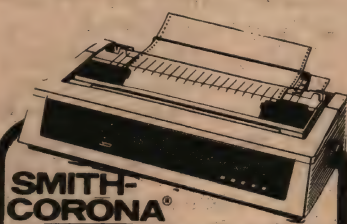


Fully compatible enhanced keyboard with large return, shift, etc. Lighted number/caps lock\$ 88
Keytronic 5151 compatible keyboard\$115
OEM Keyboard, like original IBM\$ 78

PC/XT EXPANSION CARDS

Multifunction PAR/SER/Clock/Game with 384K	\$199
Floppy Disk Controller with Cables	\$ 75
Color Graphics and Mono Graphics Card	\$119
Parallel Printer Adaptor	\$ 45
Serial Async. Com. Adaptor	\$ 49
300/1200 BAUD Hayes Comp. Internal Modem	\$229
10 Meg Hard Disk and Controller	\$525
QUME 48TPI DSDD New 1/2 Height Drive	\$ 79
6 Ft. IBM Keyboard Extension Cable	\$ 5
Surge Protection Multi AC Outlet Bar	\$ 19
RAMCARD, 0 to 384K with 64K	\$ 99
IBM compatible ROM set for Basic	\$ 45
Plug in EPROM programmer with software	Call
Parallel IBM printer cable, 6 ft.	\$ 17
Trade-ins accepted on IBM kbds., P.S., etc.	Call

IBM PC, XT is a registered trademark of International Business Machines Corp.



SMITH-CORONA
Near-Letter-Quality

- 160 CPS Print Rate
- 15" Paper, std. tractor feed

D-300 \$469

NATIONAL WATS LINE 800-544-4354
GEORGIA RESIDENTS (404) 441-3112

magnum p.c.

5965 PEACHTREE CORNERS EAST
NORCROSS, GEORGIA 30071



Caretaker model # CT-8P

★ Printer Ribbons ★

Ribbons	1-11	12+
Apple Imagewriter	5.00	4.50
C. Itoh Prowriter	5.00	4.50
Data South DS180	5.20	4.95
Diablo HYII M/S	4.25	3.75
Diablo HYII Nylon	5.20	4.95
Epson MX80	4.50	4.00
Epson MX100	6.50	5.75
NEC 5500 Spinwriter M/S	4.75	4.25
Okidata 80, 82, 92, 93	2.25	2.00
Olivetti ET101 Correctable	5.00	4.75
Qume M/S	3.40	3.15
Qume 4 M/S	5.00	4.65
Ricoh RP1600 M/S	5.00	4.60
Diskettes & Paper	1	2-4 5-10
Bonus Diskettes 5 1/4" SS/DD	11.90	11.30 11.05
Bonus Diskettes 5 1/4" DD/DD	15.40	14.60 14.30
Verbatim 3 1/2" SS/DD	35.45	33.75 32.95
9 1/2"x11" Blind Perf Blank	24.27	21.67 20.80
Accessories		
3 1/2" Diskette Holders (Oak or Walnut)	21.95	Each
5 1/4" Diskette Holders (Oak or Walnut)	31.95	Each
Gato (Simulated Submarine Warfare for IBM & Mac)	39.95	Each

Terms for delivery are COD Mastercard and Visa Accepted
 100% Unconditionally Guaranteed Colors Available
 Shipping & Handling Fees Added
 Hundreds of Other Ribbons, Supplies & Accessories

Golden Ribbon Corporation
 6317 Arapahoe, Boulder, CO 80303
 (800) 621-8385 Ext 104
 In Colo. (303) 443-6966

by Lon Andrews

The Caretaker Automatic Switch by Rose Electronics is a device designed to service schools and businesses with more than one computer serving the same printer (or other peripheral). It is supposed to eliminate the necessity of unhooking and switching cables from one computer to the other or manually operating a switch to select a computer and/or printer.

The actual device isn't very impressive in appearance and is certainly easy to hook up. Standard Radio Shack printer cables from the computer to the switch and a cable with

two male 36 pin Centronics type connectors to connect the switch to the printer complete all but the power requirements. Power is supplied by a plug-in transformer and a connector to the switch. The transformer is supplied with the unit. The Caretaker measures 4 1/2" deep by 11" wide by 3" high and weighs 3 pounds. The front of the case has two banks of LED's that serve to let you know what is going on with the switch.

The first four LED's indicate the status of the operation being carried out. BUSY indicates that the printer is being used, ERROR shows that for some reason the printer is out of service and the other two, STB and ACK are used for diagnostic purposes. The rest of LED's (four or eight depending on the model) indicate which computer is accessing the printer or if no demand is being put out to the printer these LED's scan sequentially as the switch constantly checks each computer for output. Once it receives a signal it suspends scanning until the printing job is complete. At that point scanning is resumed until another signal is received. The unit can have its scan rate and time out rate set by the user. The scan rate (1 millisecond to 1 second) is self explanatory. Time out rate (100 microseconds to 256

seconds) is the time delay from end of printing until scanning is resumed.

Okay it doesn't look so bad but does it work? Much better than I thought it would. For the most part I haven't been impressed by too many of the, what my wife calls, "Gizzmos" that are available. This one is an exception. Perhaps I am more impressed by the Caretaker because it fills a need I have in my lab. We use six computers as word processors but we can't afford a DMP 2100 for each computer or even for every two computers. The Caretaker will serve all six with room for two more if we expand. So far I have found no problems with the switch and I have had it in use for a month. We have used several word processors on Model II's and 4's with no problems with software or hardware.

The Caretaker is available with a 64K or 256K buffer option. The unit I am using does not have the buffer and I don't think for our purposes I would want one. I can see where in some installations the buffer would be a tremendous asset. The documentation is a little skimpy for my tastes but there is a limit to how much can be said about an automatic switch. The only problem I have with the Caretaker is the double ended cable that serves the printer. This is a cable that I don't have and have to make or buy. I don't see why it couldn't use a standard printer cable for this purpose but I am not an engineer, just a user. Be that as it may the cable isn't hard to make and Rose sells it if you are so inclined as to spend the money.

If you have more than one computer using the same printer the Caretaker will handle our switching for you, automatically and without problems. Rose also markets other switches. One type switches multiple peripherals for one computer. Another switches multiple computers and multiple peripherals. Serial and parallel models are available in both manual and automatic versions. If the rest are as good as the Caretaker, Rose will be a busy company for some time to come.

The Caretaker
 4 channel--\$295 factory direct
 8 channel--\$395 factory direct
 Rose Electronics
 P.O. Box 742571
 Houston, TX 77274
 (713) 240-ROSE

Santa's Helper COMPUTER SHOPPER



at Special Holiday
 Rates (for
 yourself or a
 friend). See
 Center.

NEW PRINTERS ADDED! FIND YOURS BELOW.

Good This Month

RIBBON SALE

EXACT REPLACEMENTS

PRINTER MAKE, MODEL NUMBER. Contact us if your printer is not listed. We have many more in stock. We can probably RELOAD your old cartridges.	RIBBON SIZE Inches by Yards	NEW CARTRIDGES From the various manufacturers or made in our own shop. Ready to use.	RELOADS You SEND your used CARTRIDGES to us. WE put OUR NEW INSERTS in them.	INSERTS EZ-LOAD™ DROP IN. NO WINDING! EXACT REPLACEMENTS made in our own shop. Cartridges NOT included.
BASE 2, DIP 81-82-84-85, MPI 88-99-GX	1/2 x 20	\$20/2 \$57/6 \$108/12	\$7/1 \$6 ea 2 or more	\$15/3 \$54/12 \$288/72
CITOH Prowriter 1550-8510, NEC 8023-8025, APPLE DMP-IMAGEW	1/2 x 18	\$15/2 \$42/6 \$ 78/12	\$7/1 \$6 ea 2 or more	\$15/3 \$54/12 \$288/72
CITOH STARWRITER F-10-40 Carbon Film Black	5/16 x 130	\$18/3 \$60/12 \$342/72	\$5 ea 3-11 \$4 ea 12 or more	\$24/6 \$42/12 \$234/72
DIABLO HYTYPE II Fabric Black	5/16 x 17	\$18/2 \$51/6 \$ 96/12	\$8/1 \$7 ea 2 or more	\$21/3 \$78/12 \$432/72
RADIO SHACK-TOSHIBA-COMMODORE-PANASONIC-RICOH				
Carbon Film - DWP 210 (Hytype II)	5/16 x 145	\$18/3 \$60/12 \$342/72	\$5 ea 3-11 \$4 ea 12 or more	\$24/6 \$42/12 \$234/72
DW II, DWP 410-510, RICOH 1200-1300-1600	1/4 x 145	\$18/3 \$60/12 \$342/72	\$5 ea 3-11 \$4 ea 12 or more	\$24/6 \$42/12 \$234/72
Red, Green, Blue, Brown	1/4 x 130	\$21/3 \$72/12 \$420/72	\$6 ea 3-11 \$5 ea 12 or more	\$30/6 \$54/12 \$234/72
Fabric (Long Life), DWP 210 (Hytype II)	5/16 x 17	\$18/2 \$51/6 \$ 96/12	\$8/1 \$7 ea 2 or more	\$21/3 \$78/12 \$432/72
DW II, DWP 410-510, RICOH 1200-1300-1600	1/4 x 25	\$18/2 \$51/6 \$ 96/12	\$8/1 \$7 ea 2 or more	\$21/3 \$78/12 \$432/72
DMP-100, LP VII, COMMODORE 1525, GORILLA BANANA (1424)	Inker Loop	\$18/2 \$51/6 \$ 96/12		
DMP-200, 120, (430 Inserts & Reloads Only)	1/2 x 20	\$20/2 \$57/6 \$108/12	\$7/1 \$7 ea 2 or more	\$15/3 \$54/12 \$288/72
DMP-400-420, LP VI-VIII, PANASONIC KXP-130	5/16 x 14	\$15/2 \$42/6 \$ 78/12	\$7/1 \$6 ea 2 or more	\$15/3 \$54/12 \$288/72
DMP-500	1/2 x 20	\$22/2 \$63/6 \$120/12	\$7/1 \$6 ea 2 or more	\$15/3 \$54/12 \$288/72
DMP-2100, TOSHIBA P1340-1350-1351-351	1/2 x 20	\$15/2 \$42/6 \$ 78/12	\$7/1 \$6 ea 2 or more	\$15/3 \$54/12 \$288/72
LP-I-II-IV, CENTRONICS 730-737-739-779 (Zip Pack)	9/16 x 16			\$12/3 \$45/12 \$252/72
LP III-V	1/2 x 15	\$15/2 \$42/6 \$ 78/12	\$7/1 \$6 ea 2 or more	\$15/3 \$54/12 \$288/72
EPSON LQ 1500	1/2 x 14	\$22/2 \$63/6 \$120/12	\$7/1 \$6 ea 2 or more	\$15/3 \$54/12 \$288/72
MX-FX-RX 70-80, IBM PC (Standard Paper), LX 80 (5/16 x 7)	1/2 x 20	\$14/2 \$36/6 \$ 66/12	\$7/1 \$6 ea 2 or more	\$15/3 \$54/12 \$288/72
MX-FX-RX 100, IBM PC (Wide Paper)	1/2 x 30	\$18/2 \$51/6 \$ 96/12	\$8/1 \$7 ea 2 or more	\$18/3 \$66/12 \$360/72
NEC Spinwriter-Carbon Film -2000-3500 (Reloads BCCOMPCO Only)	5/16 x 145	\$21/3 \$78/12 \$450/72	\$5 ea 3-11 \$4 ea 12 or more	\$24/6 \$42/12 \$234/72
-5500-7700 (Can Reload Most Types)	1/4 x 145	\$18/3 \$60/12 \$342/72	\$5 ea 3-11 \$4 ea 12 or more	\$24/6 \$42/12 \$234/72
-Fabric -2000-3500 (Can Reload All)	1/2 x 14	\$18/2 \$51/6 \$ 96/12	\$8/1 \$7 ea 2 or more	\$15/3 \$54/12 \$288/72
-5500-7700 (Can Reload All)	1/2 x 13	\$15/2 \$42/6 \$ 78/12	\$8/1 \$7 ea 2 or more	\$15/3 \$54/12 \$288/72
Pinwriter P1-P2	1/2 x 20	\$25/2 \$69/6 \$126/12	\$7/1 \$6 ea 2 or more	\$15/3 \$54/12 \$288/72
P3	1/2 x 27	\$30/2 \$84/6 \$156/12	\$8/1 \$7 ea 2 or more	\$18/3 \$66/12 \$360/72
OKIDATA Pacemark 2350-2410 Black	1/2 x 100	\$32 each	\$20/1 \$18 ea 2 or more	\$6/3 \$132/12 \$720/72
Microline ML-80-82-83-92-93 (Call for ML-84 Prices)	1/2 x 16	Spool \$36/12 \$198/72		
MANNESMAN-TALLY MT-160	9mm x 11	\$19/2 \$54/6 \$102/12		
MT-180	9mm x 13	\$20/2 \$57/6 \$108/12		
-Spirit 80 (SP80) COMMODORE 1526 (Multistrike)	1/2 x 35	\$16/2 \$45/6 \$ 84/12		
PANASONIC KXP-1090-1091-1092-1093	5/16 x 3	\$20/2 \$57/6 \$108/12		
BROTHER HR-15-25-35 Carbon Film (Multistrike or Correctable)	5/16 x 82	\$18/3 \$60/12 \$342/72		
COMREX DX-15, II Fabric (Call for Comrex 420 Prices)	5/16 x 17	\$15/2 \$42/12 \$ 78/72		



BCCOMPCO



800 South 17 Box 246

Summersville, MO 65571 • (417) 932-4196
 WE PAY UPS SHIPPING ON PREPAID ORDERS.
 PLEASE INCLUDE STREET ADDRESS FOR UPS DELIVERY
 FOREIGN ADD 15% U.S. FUNDS
 MISSOURI RESIDENTS ADD 5% SALES TAX



IBM and



Floppy Disk Drive Sales & Service

EXTERNAL FLOPPY FOR YOUR apple IIc PORTABLE

ONE (1) 1/2 HIGH FLOPPY DRIVE INCLUDING ENCLOSURE, & CABLE.

DIRECT DRIVE - NO BELTS ONLY

\$129.50!

DEALER INQUIRIES WELCOME!!

DISK DRIVES FOR apple (YOUR IIe & II PLUS)

We Are Completely Apple Compatible!

ADD YOUR 1ST DRIVE FOR

A INCLUDES: \$159.50

DISK CONTROLLER CARD

(Will Handle Two (2) Disk Drives)

ONE 1/2 HIGH APPLE COMPATIBLE DRIVE

ONE DRIVE ENCLOSURE

ONE DRIVE CABLE

DIRECT DRIVE NO BELTS

ADD A SECOND DRIVE FOR ONLY

B INCLUDES: \$119.50

ONE 1/2 HIGH APPLE COMPATIBLE DRIVE

ONE DRIVE ENCLOSURE

ONE DRIVE CABLE

BUY A & B AT THE SAME TIME

2 DRIVE PRICE \$259.50

WE SERVICE WHAT WE SELL!

NEW! DISK DRIVES

SINGLE SIDED 48 TPI

from **\$109.00**

DOUBLE SIDED 48 TPI

from **\$129.00**

DOUBLE SIDED 96 TPI

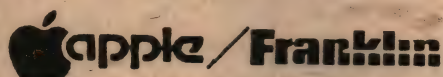
from **\$175.00**

DEALER INQUIRIES WELCOME

DRIVE ENCLOSURES SINGLE/DOUBLE

from **\$44.50**

WITH POWER SUPPLY



DISK CONTROLLER CARD

\$34.50

CLOSE-OUT

REMEX 4000 8" D/S D/D

1 Each \$159.00
2 Plus \$149.00

WE ALSO SUPPORT MORROW, TRS, ETC.

WE SERVICE WHAT WE SELL!

SERVICE SPECIALS *

All 8" S/S Disk Drives . . . **\$60**

All 8" D/S Disk Drives . . . **\$70**

All 5-1/4" S/S Disk Drives . **\$40**

All 5-1/4" D/S Disk Drives . **\$50**

(*Prices are plus parts and shipping costs)

*Most Models

Hard Disk Controller (ONLY)

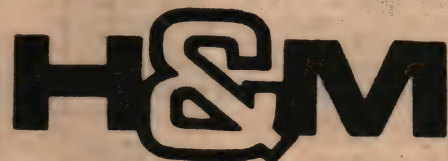
10 or 20 MEG.

WITH CABLES FOR ST506 TYPE

ONLY \$195.00

THE BEST!

NEW! American Made 10 MEG. HARD DISK
3 1/2" HALF HIGH
(will fit 5 1/4 slot)
WITH W.D. CONTROLLER AND CABLES
READY TO USE
for your **IBM** or ??
ONLY \$590.00



Disk Drive Services

**FLEXIBLE DISK DRIVE SPECIALISTS
SERVICE & REPAIR**

1101 EAST PACIFICO
ANAHEIM, CALIFORNIA 92805

(714) 385-1146



Mail Order Add \$7.00 Freight
California Residents add 6% sales tax
DEALER INQUIRIES WELCOME
F.O.B. Anaheim, California

Blankenship BASIC

by Philip Chien

Blankenship BASIC is a utility which adds many needed commands to Applesoft BASIC. When the Apple II first came out, Integer BASIC was built in. It was first written by Steve Wozniak on a 6502 emulator program on a HP mainframe, well before the first 6502s were available. Many programmers, myself included, still consider it the finest BASIC available for any computer; but--Integer BASIC is not a standard BASIC, besides the obvious lack of floating point numbers it doesn't have "standard" commands which most BASICs have. Apple Computer therefore released Applesoft I in 1977. It was

the standard 6502 version of Microsoft BASIC with an option for LORES graphics. It came on cassette (this was before disk drives!) and took over two minutes to load. In the summer of 1978 Apple came out with Applesoft II. Applesoft II was available either as a ROM card which plugged into slot 0, or a RAM version which could be loaded from diskette or tape. When the Apple II Plus came out, the Applesoft ROMs were installed on the motherboard, and Applesoft became the default language for the Apple II series. Applesoft is even available on the Apple III in the II emulator mode. In January 1983, the Apple IIe was introduced, and Applesoft

was (you guessed it) the default language. When the IIc came out, lowercase input was added, and the IIc version of Applesoft became available on the IIe when the IIe enhancement kit came out. Most imitation Apples also use slightly modified versions of Applesoft, so all together there are hundreds of thousands of users of the various versions of Applesoft BASIC.

Unfortunately--for compatibility reasons very few changes have been made to Applesoft II. No new commands were ever added. BASIC on the Apple III, Lisa, Macintosh, and even on the Apple II series under CP/M or the UCSD P-system (Pascal) all are much more powerful than

Applesoft BASIC. Formatting output in Applesoft is a pain-in-the-Apple! Most other BASICs and most structured programming languages have some command for formatting output, but Applesoft has no PRINT USING command. Consequently there are several different PRINT USING utilities available for Applesoft in public domain and sold versions.

Besides PRINT USING many other commands it would be nice if Applesoft had several other functions. The Apple's ESC I-J-K-M routines are better than a TTY's (Teletype) line editor--but barely. Sort commands, string search, better flow structure, formatted listings, and fast garbage

collection would all make Applesoft more friendly.

BBASIC operates with Applesoft. The program editor converts your commands into the ampersand commands used by BBASIC and when your program is run, the commands are trapped and executed. The program editor includes the badly needed Insert and Delete commands. For example, if you want to print the value "A" in dollars and cents format, you'd type into the editor: 'PRINT USING "\$###.00", A'. The editor would enter it into the program as '1000 & PRINT "\$###.00", A'. When the program is run the ampersand vector tells BBASIC to take over. BBASIC prints the value A in dollars and cents format, and returns control to Applesoft. It works much easier than it sounds. All of the ampersand commands are completely transparent to the end user--and even the programmer.

BBASIC also helps enhance graphics displays. Applesoft's

Continued on page 116

New Apple II
Continued from page 59

sync and/or invalid bytes. It also has a 28K byte track buffer.

Other Echo Plus features include:

Precise drive speed - accurately displays drive speed in RPMs rather than vague and imprecise graphics.

Drive Alignment - checks the alignment of disk drives.

Disk Certify - checks the surface of a blank disk for physical damage.

Disk Erase - erases selected tracks.

Echo Plus works with the Apple II, II+, IIc, or IIe computers and most Apple compatibles and emulators with at least 48K RAM and one disk drive (DOS 3.3).

According to the publisher, Echo Plus is the most powerful copy program available for the money and is priced 20% to 40% below competitive copy programs. (See comparison chart on page 59).

Echo Plus is available directly from Agranat Systems, 10 Winthrop Circle, Weston, MA 02193. Send check or money-order for \$59.95 plus \$5.00 postage and handling. (In Massachusetts, add \$3.00 sales tax.)

Mention that you read about it in the Computer Shopper. ●

Apple II SALE

We will not restock many of these items once our current stock is gone!

	BOARDS	POPULATED	BARE
48K APPLE II+ CLONE MBOARD		\$149	\$24
FRANKLIN ACE MOTHER BOARD		\$89	\$24
EXTENDED 80 COLUMN CARD 64K		\$59	\$7
SUPER SERIAL CARD		XX	\$7
FRANKLIN 80 COLUMN CARD		\$59	\$7
280 (CPM) CARD		\$39	\$7
TYMAC TACKLER GRAPHIC/PRINTER		\$59	XX
DISK INTERFACE CARD		\$29	\$7
128K RAM CARD		\$95	\$7
EPROM READ/WRITE/COPY CARD		\$49	\$7
VIDEX TYPE 80 COLUMN CARD		XX	\$7
MANY MORE!!		CALL	CALL
OTHER APPLE II ITEMS			PRICE
FRANKLIN KEYBOARDS			\$35
SANFON KEYBOARD REGULAR			\$59
APPLE STYLE CASE FOR ABOVE KB			\$54
SANFON KEYBOARD W/ NUMERIC KEYPAD			\$69
APPLE STYLE CASE FOR ABOVE KB			\$54
SUPER COOLING FAN			\$36

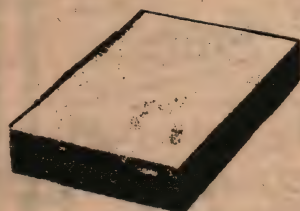
LEADING EDGE™ COLOR MONITOR

MITAC™ MODEL AD-3

\$129

A direct drive, floppy
Plug compatible with any
Apple II series computers

Ivory-colored add-on 5 1/4"
floppy drive designed
especially for the Apple II,
Apple IIe, or Apple IIc.



APPLE IIc DISK DRIVE ADAPTOR

\$19

Connects Any Apple Compatible Disk Drive to external drive port

IC TESTER for use with Apple II, II+, IIe

Tests TTL, CMOS & HCMOS IC's with 14 20 pins diagnoses chips as good or bad. Includes internal PC board external ZIF socket & software. Identifies unlabeled IC's.

\$119

Extended 80-column card for APPLE IIe

\$59

GIVES YOUR SYSTEM 80-COLUMN
ABILITY PLUS AN ADDITIONAL 64K RAM!

NO EXTRA CHARGE ON CREDIT CARD ORDERS
• ALL ORDERS SHIPPED UPS GROUND
UNLESS OTHERWISE REQUESTED • BUYER
PAYS FREIGHT & INSURANCE • COD \$1.90

THRIFTY BITS

606 WEST STREET ROAD, FEASTERVILLE, PA 19047

(215) 355-3188



Ask The Guru

Continued from page 60

needed to pick one monitor or the other.

Switch flipping is best done cold. If you try to flip the switches during a program, strange things may happen, depending on whether either monitor is being accessed at the time the switch is flipped, and whether the code being used at this instant is different between the two monitors.

One really neat trick would be to use a pair of 27512's instead, whose eight 64K banks are selected by an eight way selector switch. This would let you have an old monitor, a new monitor, a word processor, a spreadsheet, a graphics program, and three other programs all resident in your machine for instant access. A somewhat different adaptor scheme would be needed.

Keep me posted on your multi-monitor activities.

Are There Some Bugs In The Vaporlock?

There didn't used to be.

The vaporlock is a fast, software only the way of locking the Apple II+, IIc, or IIe screen to the CPU timing. Among its other neat tricks, this lets you mix and match text, HIRES, and LORES graphics anywhere on the screen in any combination. You can also do windows, glitch free animation, software-only color killing, and fancy wipes between display pages that require no remapping, plus lots of other largely unexplored neat tricks.

Full details appear in my book *Enhancing Your Apple II & IIe*, volume II and published by SAMS.

The vaporlock has been thoroughly alpha tested over two years with no reported problems.

But this week, all of a sudden I got two calls from two wildly different people having problems using the vaporlock on the IIe. The problem always seems to be related to

some exotic plug-in card, notably the Ultraterm, the Niceprint, and the SCRG Switch cards.

I don't have any of these cards and I am at a total loss as to why they should cause any problems on either the old or new IIe. The IIe has a fully buffered data bus, so there should be no loading that would swamp out the "fumes" needed by the vaporlock. And the "fumes" appear to be still

readable from the monitor, even when the vaporlock seems to be unable to find them!

Even if these cards accessed some of the invisible HIRES "screen hole" memory locations needed by the vaporlock, they shouldn't do it during the time the vaporlock sub is actually in use.

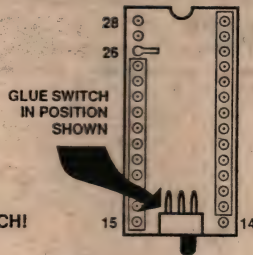
Are special connections to unusual points in the IIe in-

Continued on page 112

4. () Carefully roughen one side of the SPDT slide switch and the bottom of the 28 pin DIP socket between pins 14 and 15. Use very fine sandpaper or steel wool.

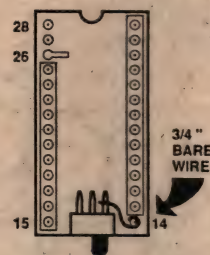
- () Glue the switch to the 28 pin DIP socket as shown using superglue or epoxy. Let sit overnight and then verify that the switch still works.

DON'T GET ANY GLUE INSIDE THE SWITCH!



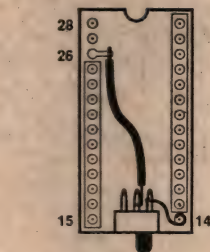
5. () Prepare a 3/4 inch length of bare #24 wire. Connect this wire to pin 14 of the 28 pin socket and then to the nearest pin on the SPDT slide switch.

- () Solder both connections, using a spare DIP strip as a safety backup heatsink. Cut off any remaining wire. Be very careful not to get any solder on the tip of pin 14.



6. () Take a 1-3/4 inch piece of green #24 solid insulated wire and strip 1/4 inch from each end.

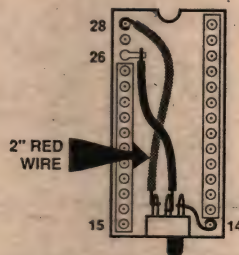
- () Solder one end of this green wire to pin #26 and the other end to the center pin on the SPDT slide switch.



7. () Take a two inch piece of red #24 solid insulated wire and strip 1/4 inch from each end.

- () Solder one end of this red wire to the far unused pin on the SPDT slide switch. Solder the other end of this wire to pin #28 after looping it.

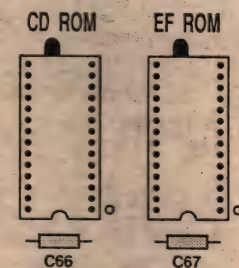
- () Make sure that no solder gets on the tip of pin #28 and that there is no short to adjacent pin #27.



8. () Turn the Apple IIe power off and remove the line cord at both ends. Carefully remove the original CD and EF monitor chips and store them in protective foam.

- () Plug one adaptor into the CD ROM slot at D8 and the other adaptor into the EF ROM at D10 as shown. Plug your already programmed 27128 EPROMs into these adaptors.

- () Be sure that the CD EPROM goes in the CD slot, and that the notch and dot on both EPROMs point forwards, towards the keyboard.



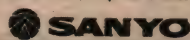
Santa's Helper

COMPUTER SHOPPER



at Special Holiday Rates (for yourself or a friend). See Center.

9 AM to 9 PM daily
ATARI 520ST \$CALL



Microcomputer Systems

SANYO IBM Video Board for 550/555 Series, includes GW-BASIC, runs LOTUS and other PC software \$175

SANYO MBC 550-2 and MBC 555-2 DSDD and DSQD systems with software \$CALL

Monitors, memory expansion, DSDD and DSQD Teac drives, M5-DOS 2.11 DSDD and DSQD system disks, serial ports, clock/calendar boards, printers, software, and reference and technical manuals for Sanyo 550/555 Series. New POKER - great fun for only \$18.15 postpaid in U.S.A., \$20.75 elsewhere. Call or write for price list.

MULTI-TRONIX

3210 Terry Drive • Toledo, OH 43613 • Telephone: 419/472-3360



BARE CARDS FOR APPLE™ & IBM™ BUILDERS

We stock over forty different APPLE & IBM-compatible bare cards described in Raymond Kosmic's Computer Assembly Manuals APPLE SEED II (\$12.95) for APPLE builders & the BIG BLUE SEED (\$14.95) for IBM builders. Try us for those unusual or hard-to-find bare cards.

- SHORT CARDS FOR THE "SHORT SLOT" OF IBM XT's:**
2-9 DISK CONTROLLER: uses the 9229 IC, runs up to four drives. ... \$20.00
6-1 EPROM BLASTER/SERIAL PORT: 2-card set with ZIF socket on the external card; with serial port; complete with software. \$35.00
6-2 PARALLEL CARD: with one parallel port \$17.50
6-4 GAME CARD: with two joystick ports \$17.50
6-6 CLOCK CARD: battery-backed real-time/clock-calendar \$15.00

OVER TEN OTHER IBM-COMPATIBLE CARDS TO CHOOSE FROM!

FOR APPLE BUILDERS:

- 2-8 128 K ADD-ON: add memory to the Z-80/64 K Applicard \$15.00
4-6 SPEEDY CARD: similar to the Accelerator \$17.50
5-6 PRELUDE 32 K BUFFERBOARD: Microbuffer-compatible \$12.00
9-3 ROM BLASTER: popular EPROM programmer \$15.00
10-11 PRO TIME-CLOCK: like the Thunderclock \$15.00

OVER TWENTY-FIVE OTHER APPLE-COMPATIBLE CARDS TO CHOOSE FROM!

BUY ANY FOUR CARDS AND DEDUCT 10%
SEND CHEQUE/MONEY-ORDER
IN US FUNDS TO:

MICRO MATE ASSOCIATES

IN U.S.A.

P.O. Box 790
Lewiston, NY
USA, 14092

IN CANADA

P.O. Box 842, Stn B
Willowdale, Ont.
Canada, M2K 2R1



wabash®

Pinnacle Series

DISKETTES

77¢ ea.



Certified 100% Error Free
Meets all Industry Standards
Manufacturer of Magnetic Media
for Over 20 years
Reinforced Hub Ring
Lifetime Warranty

BOXED with ENVELOPES and LABELS

	10	100
5.25" SSDD, SOFT SECTOR, w/hub ring	\$.95	\$.77
5.25" DSDD, SOFT SECTOR, w/hub ring	1.09	.88



DATA TECH

DISKETTES

Lifetime Warranty 100% Error Free
UNIQUE EASEL-BACK CASE functions as
Library Box for convenient, permanent
storage and easy diskette access.

	10	100
5.25" SSSD, SOFT SECTOR, w/hub ring	\$.98	\$.91
5.25" SSDD, SOFT SECTOR, w/hub ring	1.18	.99
5.25" DSDD, SOFT SECTOR, w/hub ring	1.28	1.11
5.25" DSQD, SOFT SECTOR, w/hub ring	1.88	1.59
5.25" SSSD, 10 SECTOR, HARD w/hub ring	1.18	.98
8" SSSD, SOFT SECTOR, Unformatted	1.79	1.59
8" SSDD, SOFT SECTOR, Unformatted	1.88	1.69
8" DSDD, SOFT SECTOR, Unformatted	1.98	1.89
3.5" SSDD, 135 TPI	2.79	2.59
3.5" DSDD, 135 TPI	3.89	3.69

SUPER SPECIAL!!

5.25" HIGH DENSITY DISKETTES for use on IBM PC-AT
10 / \$2.35 each, 100 / \$2.20 each

DEALERS! SCHOOLS! USER GROUPS!
CALL FOR VOLUME DISCOUNTS

Terms: Add \$3 shipping & handling for U.S. orders. Outside USA add \$10 to cover postage. In Illinois add 7% sales tax or provide resale certificate. Prices & terms subject to change without notice.

CALL TOLL FREE (orders only)

1-800-222-1248

in Illinois or for information
312-882-8315

AUTHORIZED WABASH DISTRIBUTOR

DIGITAL IMAGES

1185 TOWER RD. SCHAUMBURG, IL 60195

Ask The Guru Continued from page 111

volved in these cards? Are weird interrupts or NMI games involved? Are special chips used to alter timing? Is the memory area needed by the vaporlock sub somehow protected or overwritten? Are these cards trying vaporlocks of their own? It's real hard to troubleshoot

over the phone, but what seems to be happening is that the i.d. patch in the HIRES screen holes is somehow getting altered. Either it is not being put down properly in the first place, or else it gets trashed by the time it is needed.

So, this time, I'll ask you for help. What is going on and why? Are there any other problem cards? What is the

specific cause of the problem? The cure?

I'd hate to have to put a "Beta Release" sticker on this one, since the vaporlock is so cute and neat.

Please help. We'll even make a contest out of it. Some books or a tinaja quest to the winners.

How Can I Do An Isometric Drawing?

Why, with Applewriter on a IIe, of course. How else could you possibly do an isometric drawing?

Figure three shows us some

details. Isometric Drawing is one standard way of showing three dimensional objects on a flat sheet of paper. The original x axis leans up 30 degrees to the right. The original y axis leans up 30 degrees to the left. The original z axis still goes straight up and down. You can measure actual scale lengths along all three axes.

I've put together some Postscript routines that easily let you do Laserwriter graphics directly out of Applewriter. The cl, cr, and ct commands handle the circles as ellipses slanted and stopped just the

right way for left, right, and top faces. al, ar, and at do the same thing for arcs. Im, Irm, Id, and Ird commands handle left moves and left draws, both relative and absolute. Similar commands exist for the other two axes, while the im, irm, id, and ird commands do a triple isometric move or draw all in one command. These are needed for positioning or for slanting lines that go in two or three dimensions.

The dashes are done by using the SETDASH operator. Compound curves are handled with cubic splines.

Neatest of all are the pr, pl, and pt commands that print right, print left, and print top, automatically slanting and arranging the letters so they seem to "belong" on any face.

The actual isometric transformations aren't really all that bad. They are...

$$\text{vertical} = Z + 0.5 (X + Y)$$

$$\text{horizontal} = 0.866 (X - Y)$$

Here X, Y, and Z are the original three dimensions, while vertical and horizontal are the final directions on the final two-dimensional page. Circles are done as ellipses with a magic angle of 35 degrees and 16 minutes, either flat for the top, or rotated plus or minus 60 degrees for the sides.

Trig freaks will note that 0.5 and 0.866 are the respective sine and cosine of 30 degrees, while 35 degrees and 14 minutes is the angle whose tangent is 0.5.

The lettering is nothing but a stock font that gets slanted and rotated. You either lean the letters forward or backwards 30 degrees as needed. The other nine lettering orientations not shown in figure three are also easily done.

Isometric is ideal for "exploded" views that show how things go together, particularly when lots of round parts are involved. One limitation is that boxy subjects seem a tad out of proportion with the far corner looking "too big." You can see if you stare at figure three long enough. This is caused by your brain being used to seeing things in perspective.

You'll find more isometric detail examples back in figure two.

Actually, isometric is only one of an infinite number of possible axonometric projections. Draftsmen and tech illustrators typically avoid most of the other viewing angles like the plague, since they used to be a royal pain to draw. Oftentimes, some really offbeat axonometric projection will show an object or an assembly drawing in its best light.

We've got an Apple SALE



Apple IIe Apple IIe, Apple Disk Drive
Pro-DOS \$1324 **\$925**

Apple 80-Column Card	\$125	\$88
Apple Parallel Card	165	116
ImageWrite Kit for E	55	39
Apple Pro-DOS w/manual	75	30

☐ Enhance your older Apple IIe
Use software for the 'C' and
get better graphics. 4 new
chips and more. **\$35**

☐ Pro-DOS and manual **\$30**

Apple IIc

APPLE IIc, APPLE
MONITOR, STAND
\$1433 **\$975**



Apple IIc, 128K	\$1195	\$837
Apple IIc Monitor	199	139
Apple IIc Stand	39	27
Apple IIc Carry Case	39	27
ImageWrite Acc Kit	55	39
Scribe Acc Kit	55	39
Serial Printer Cable	20	14

☐ SPECIAL VALUE: MACINTOSH Carrying
Case, rugged & nice **\$99 \$65**

☐ All original Apple products in
original boxes.

☐ START YOUR OWN APPLE SERVICE COMPANY.
We'll sell you new original Apple
parts (II, e, c, Macintosh) at a
30% discount Ask for price list.

☐ Apple Disk Controller Card **\$35**

20TH CENTURY COMPUTERS
311 N. MAIN - PUEBLO, CO
(303) 545-2493

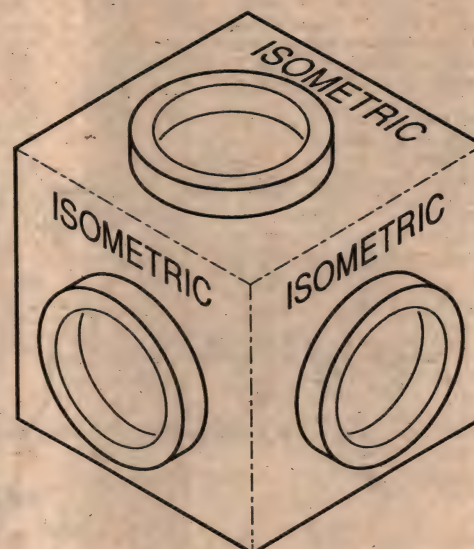


Figure Three - Isometric drawings are easily done by using Laserwriter and Applewriter on a IIe.

NEW DON LANCASTER RELEASES

Available ONLY from Synergetics. All software open and unlocked.

ABSOLUTE RESET (IIc/old IIe/new IIe).....\$19.50

Get back in total control. No more hole blasting! Access any part of any program at any time for any reason. Passes all diagnostics. Invisible till activated. Includes EPROM burner adapter details, service listings, and a free bonus book.

APPLEWRITER™ TOOLKITS (DOS 3.3 or ProDOS).....\$39.50

EIGHT diskette sides include a complete disassembly script; source code capturing; self-prompting glossaries; Diablo microjustify and proportional space; patches including NULL, shortline, Grappler, IIc detaching, many others; answers to most help line questions; two columns; WPL secrets; space on disk; keyword indexing; multi and even-odd headers; bounces more.

Both TOOLKITS (sixteen disk sides).....\$59.50

APPLEWORKS™ DISASSEMBLY SCRIPT.....\$49.50

TEN diskette sides chock full of Applework's innermost secrets, using Don's unique and powerful "learning method." Primarily for gonzo hackers and definitely NOT for the faint of heart.

LASERWRITER/APPLEWRITER UTILITIES.....\$39.50

Two volume package gives you unmatchably superb IIe text and graphics. Included are automatic formatters, boxes and fancy borders, daisywheel changers, envelope and label routines, unbelievably fast formletters, grids and rulers, HIRES converters, DCI patches, demos, justify routines, self-prompting glossaries, help screens, a sign shop, outlined text, more.

AUTOGRAPHED LANCASTER BOOKS:

Apple IIe Assembly Cookbook	\$21.50
All About Applewriter IIe	\$14.50
Enhancing Your Apple II & IIe, (Volume I or II)	\$15.50
Micro Cookbook (Volume I or II)	\$15.50
CMOS Cookbook	\$14.50
TTL Cookbook	\$12.50
Incredible Secret Money Machine	\$7.50
Complete book and software list	(FREE)

COMPANION DISKETTES:

For Enhancing Your Apple II, Volume I	\$19.50
For Enhancing Your Apple II, Volume II	\$19.50
For Don Lancaster's Assembly Cookbook	\$19.50

SYNERGETICS
746 First Street
Box 809-CS
Thatcher, AZ, 85552

FREE VOICE HELPLINE
(602) 428-4073

Appleworks, Applewriter, and ProDOS are registered trademarks of Apple Computer. VISA and MASTERCHARGE accepted. Please - no COD, foreign, or purchase orders.

KINGSIZE VALUE

"KING OF THE ELECTRONICS JUNGLE"



LEO ELECTRONICS, INC.
P.O. Box 11307
TORRANCE, CA 90510-1307
PHONE 213/212-6133 or
outside CA: 800/421-9565
TLX: 291 985 LEO UR
FAX: 213/212-6106

WE WILL BEAT ANY PRICE ON MEMORY EXPANSION CHIPS

UPGRADE YOUR IBM OR OTHER PC WITH MORE RANDOM ACCESS MEMORY.

RAMS	EACH
41256-150ns	2.75
4164-150ns	.75
4164-200ns	.70
4128-150ns (IBM/AT)*	4.89
HM6116P-3	2.50

EPROMS AND MATH CO-PROCESSOR CHIPS

2708	\$2.80	27128	\$4.50
2716	2.80	27256	9.00
2732	3.00	8087	CALL
2764	3.30	80287	CALL

SALE PRICING

If these prices are not the lowest in this publication, we will beat any legitimate** price.

**Confirmed prime chip pricing on quality merchandise.

INQUIRE ABOUT:

Disk Drives
Power Supplies
Computers
And More...
Call for Brochure

*IBM — Trademark of International Business Machines

We accept checks, VISA, Mastercard. Purchase Orders from qualified firms and institutions. U.S. funds only. Call for C.O.D. California residents add 6 1/2 % tax. Shipping is UPS. Add \$2.00 for ground and \$5.00 for air. All major manufacturers. All parts 100% guaranteed. Pricing subject to change without notice. \$10 minimum order.

CALL FOR VOLUME PRICING.

UPGRADING YOUR PC DOES NOT HAVE TO BE EXPENSIVE!

THE "KING" WILL BEAT ANY PRICE WITH PRIME QUALITY MERCHANDISE!

Ask The Guru

Continued From Page 112

But Applewriter and Postscript couldn't care less. A trig calculation is a trig calculation, no matter how weird the angle or how funny the ellipse. There are a nearly infinite number of ellipse templates sitting inside the Laserwriter, and they are all equally accessible. Thus, you can easily do virtually any 3-D axonometric drawing just about as simply as you can do plain old isometric.

Some more axonometric options appear on page 77 of *Wellman's Technical Descriptive Geometry*, which is published by McGraw Hill.

Write or call if you need any more info on any of this.

Actually, is there anything that Applewriter can't do? All parts of all figures in this column were done with Applewriter on a IIe. I even have a neat routine here that lets Applewriter play "Stars and Stripes Forever" as an error message.

So, how about a second contest this month? A free SAMS book to the first five *Computer Shopper* readers that show me the best ways to milk cows by using Applewriter on IIe. And a tinaja quest for two (FOB Thatcher, of course) to the overall winner.

Assuming you are in the mood for a contest, that is.

Adobe Systems (Postscript)
1820 Embarcadero Rd. S-120
Palo Alto, CA 94303
(415) 852-0271

E-Tech Services
Box 2061
Everett, WA 98203
(206) 872-9004

EVCO
3451 Lorna Road
Birmingham, AL 35236
(205) 822-5381

Gila Valley Apple Growers
Box 809
Thatcher, AZ 85552
(602) 428-4073

Inside Laserwriter
467 Saratoga Ave. S621
San Jose, CA 95129
(408) 988-6009

Jensen Tools
7815 S. 46th Street
Phoenix, AZ 85040
(602) 968-6231

Modern Electronics
76 North Broadway
Hicksville, NY 11801
(516) 681-2922

McGraw Hill
1221 Ave. of the Americas
New York, NY 10020

Howard W. Sams
4300 West 62nd St.

Indianapolis, IN 46206
(800) 428-SAMS

Synergetics
Box 809
Thatcher, AZ 85552
(602) 428-4073

NEED HELP?

Phone or write your Ask the Guru questions directly to:

Don Lancaster
SYNERGETICS
Box 809
Thatcher AZ, 85552
(602) 428-4073

You Oughtta Be In Pictures Contest

Baudville, creators of TAKE 1, animation package, launched a national movie contest, 'You Oughtta Be In Pictures.' "There is nothing quite like a moving picture to educate or entertain, so we decided to invite Apple users to share in the fascination of creating their own computer animation while being eligible for valuable prizes," said Michael

Darooze, Baudville author.

Baudville is looking for the best movies created with TAKE 1 and an Apple Computer with \$1,000 Shopping Sprees awarded to the winners. Entries will be judged in January 1986 at the Consumer Electronics Show in Las Vegas by industry leaders:

Steve 'Woz' Wozniak; Co-

Founder Apple Computer Bob Singer; Art Director, Hanna Barbera Productions Maggie Canon; Editor, A+ Magazine Vibeke Sorensen; Educator/Animator, California Institute of the Arts, California Institute of Technology

Schools may continue to

Continued on page 115

49¢ Diskettes Name Brand Quality Toll-Free Ordering Fast Delivery

Call Communications Electronics

Diskette order desk

800-USA-DISK

In Canada 800-CA1-DISK

Choose your brand

Choose your price



Super Disk
diskettes ~~for us~~
\$0.49 each



Wabash
diskettes ~~for us~~
\$0.72 each



BASF
diskettes ~~for us~~
\$1.12 each



Memorex
diskettes ~~for us~~
\$1.12 each

Product Description

Product Description	Super Disk Part #	CE quant. 100 price per disk (\$)	Wabash Part #	CE quant. 100 price per disk (\$)	BASF Part #	CE quant. 100 price per disk (\$)	Memorex Part #	CE quant. 100 price per disk (\$)
8" SSDD IBM Compatible 128B/S, 26 Sector			F111-Z	1.59			3062-Z	1.84
8" SSDD Shugart Compatible, 32 Hard Sector			F31A-Z	1.79			3015-Z	1.94
8" SSDD IBM Compatible (128 B/S, 26 Sectors)			F131-Z	1.89			3090-Z	2.19
8" DSDD Soft Sector (Unformatted)			F14A-Z	2.09			3102-Z	2.59
8" DSDD Soft Sector (256 B/S, 26 Sectors)			F144-Z	2.09				
8" DSDD Soft Sector (512 B/S, 15 Sectors)			F145-Z	2.09				
8" DSDD Soft Sector (1024 B/S, 8 Sectors)			F147-Z	2.09			3104-Z	2.59
5 1/4" SSDD Soft Sector w/Hub Ring	6431-Z	0.74	M11A-Z	0.89				
5 1/4" SSDD Same as above but bulk product	6437-Z	0.54	M11AB-Z	0.79				
5 1/4" SSDD 10 Hard Sector w/Hub Ring			M41A-Z	0.89				
5 1/4" SSDD Soft Sector w/Hub Ring	6481-Z	0.84	M13A-Z	0.99	54974-Z	1.24	3481-Z	1.24
5 1/4" SSDD Same as above, but bulk product	6487-Z	0.64	M13AB-Z	0.89				
5 1/4" SSDD 10 Hard Sector w/Hub Ring			M43A-Z	0.99				
5 1/4" DSDD Soft Sector w/Hub Ring	6491-Z	0.94	M14A-Z	1.09	54980-Z	1.44	3491-Z	1.69
5 1/4" DSDD Same as above, but bulk product	6497-Z	0.74	M14AB-Z	0.99				
5 1/4" DSDD 10 Hard Sector w/Hub Ring			M44A-Z	1.09				
5 1/4" DSDD 16 Hard Sector w/Hub Ring			M54A-Z	1.09				
5 1/4" DSDD Soft Sector 96 Tracks per inch	6501-Z	1.49	M16A-Z	2.49			3501-Z	2.49
5 1/4" DS High Density Soft Sector for IBM PC AT			M18A-Z	3.99			5500-Z	3.99
3 1/2" SSDD Soft Sector micro-floppy			C13A-Z	2.74	54112-Z	2.99	6100-Z	2.49

For more information
about this brand call:

Lifetime warranty
For more info on Super Disk call
800-USA-DISK
In Michigan 313-973-1111

Lifetime warranty
For more info on Wabash call
800-323-9868
In Illinois 312-593-6363

Lifetime warranty
For more info on BASF call
800-343-4600
In Massachusetts 617-271-4000

Lifetime warranty
For more info on Memorex call
800-448-1422
Monday-Friday 9am-4pm ET

Use Your Computer To Learn Music Sight-Reading

Computers & ME, Ltd. has released its Note-Us computer sight-reading series. Note-Us is designed to teach the reading of music through the use of an Apple II computer and a four or more octave MIDI synthesizer keyboard.

Janis Colburn Foster, president, along with other founders, Bob Jones, Ted Foster, and Eric Werme, expect the pro-

duct to be very popular in education, home use and the retirement community. She also sees it used in special education. The software is based on Foster's 25 years of piano and organ teaching experience. It leads the student as rapidly as possible into creating pleasant sounds by challenging the student to use both hands on the synthesizer keyboard in

beginning lessons.

The computer is used to display the music staff, notes and instructions to the student. It is also used to check the accuracy of the playing. When inaccurate notes are played, the computer signals the student and requests playing the proper notes.

To reinforce the video screen

display, there are 25 original music examples composed by CME and packaged in the easy-to-read software manual. Foster states that one of the objectives is to teach the student to read music similar to that available in music stores.

Computers & ME (Computers & Music Education) has recently signed a worldwide

distribution agreement with Passport Designs (manufacturers of music keyboards) for distribution to retail outlets. Distribution agreements are available in the educational market. Contact Computers & ME at (603) 772-4399 for details.

Mention that you read about it in the *Computer Shopper*. ●

Now...name brand quality at CE prices

Now, you can buy all of your diskettes from CE at prices less than "unbranded" generic diskettes. Your data is valuable, so why take chances using a diskette that could be so unreliable that the manufacturer refuses to put their name on it. Compare our prices on our world famous name brand diskettes to what you are currently buying. To save you even more, CE also offers bulk product where 100 diskettes are packed in the same box without envelopes or labels. Since we save packaging costs, these savings are passed on to you. Diskette envelopes are also available from CE. These super strong and tear resistant Tyvek® envelopes are only \$15.00 per 100 pack. Use order # TE-5 for a 100 pack of 5 1/4" diskette envelopes.

Quantity Discounts Available

Our diskettes are packed 10 disks to a carton and 5 or 10 cartons to a case. The economy bulk pack is packaged 100 disks to a case without envelopes or labels. Please order only in increments of 100 units for quantity 100 pricing. With the exception of bulk pack, we are also willing to accommodate your smaller orders. Quantities less than 100 units are available in increments of 10 units at a 20% surcharge above our 100 unit price. **Quantity discounts** are also available. Order 200 or more disks at the same time and deduct 1%; 300 or more saves you 2%; 400 or more saves 3%; 500 or more saves 4%; 1,000 or more saves 5%; 2,000 or more saves 6%; 3,000 or more saves 7%; 5,000 or more saves 8%; 7,500 or more saves 9% and 10,000 or more disks earns you a 10% discount off our super low quantity 100 price. Almost all our diskettes are immediately available from CE. Our efficient warehouse facilities are equipped to help us get you the quality product you need, when you need it. If you need further assistance to find the flexible diskette that's right for you, call the appropriate manufacturers compatibility hotline telephone number listed at the bottom of this ad.

Buy your diskettes from CE with confidence

To get the fastest delivery of your diskettes, phone your order directly to our order desk and charge it to your credit card. Written purchase orders are accepted from approved government agencies and most well rated firms at a 10% surcharge for net 10 billing. For maximum savings, your order should be prepaid. All sales are subject to availability, acceptance and verification. All sales are final. All prices are in U.S. dollars. Prices, terms and specifications are subject to change without notice. Out of stock items will be placed on backorder or substituted for equivalent product at no extra cost to you unless CE is instructed differently. A \$5.00 additional handling fee will be charged for all orders with a merchandise total under \$50.00. All shipments are F.O.B. CE warehouse in Ann Arbor, Michigan. COD terms are available, in U.S. UPS areas for \$5.00 extra, and are payable with cash or certified check.

For shipping charges add \$8.00 per 100 diskettes and/or any fraction of 100 8-inch diskettes, or \$6.00 per 100 diskettes and/or any fraction of 100 5 1/4-inch or 3 1/2-inch diskettes for U.P.S. ground shipping and handling in the continental U.S. UPS 2nd day air rates are three times continental U.S. rates. For Canada, Puerto Rico, Hawaii, Alaska, or APO/FPO delivery, shipping is three times the continental U.S. rate.

Mail orders to: Communications Electronics, Box 1045, Ann Arbor, Michigan 48106 U.S.A. If you have a Visa or Master Card, you may call and place a credit card order. Order toll-free in the U.S. Dial 800-USA-DISK. In Canada, order toll-free by calling 800-CA1-DISK. If you are outside the U.S. or in Michigan dial 313-973-8888. WUI telex anytime 671-0155. Order today.

Copyright © 1985 Communications Electronics Inc.

Ad #061585-Z

COMMUNICATIONS ELECTRONICS INC.

Computer Products Division

Box 1045 □ Ann Arbor, Michigan 48106-1045 U.S.A.
Call toll-free 800-USA-DISK or outside U.S.A. 313-973-8888



Verbatim
diskettes for as low as
\$1.17 each

Verbatim Part #	CE quant. 100 price per disk (\$)
28820-Z	1.29
28821-Z	1.69
MD10-Z	1.29
MD20-Z	1.69
MD20-96TPI-Z	2.79

Lifetime warranty
For more info on Verbatim call
800-538-8589
In California 408-245-4400



Fuji
diskettes for as low as
\$1.17 each

Fuji Part #	CE quant. 100 price per disk (\$)
FD18-120N-Z	1.94
FD20-Z	2.89
FD20-1024-Z	2.89
MD10-Z	1.29
MD20-Z	1.69
MD20-96TPI-Z	2.79

Lifetime warranty
For more info on Fuji call
800-223-6535
In New York 212-736-3335



TDK
diskettes for as low as
\$1.17 each

TDK Part #	CE quant. 100 price per disk (\$)
F1-S-Z	2.34
F20-S-Z	2.89
F20-S1024-Z	2.89
M10-S-Z	1.29
M20-S-Z	1.69
M20X-S-Z	1.99
M2HD-S-Z	4.99

Lifetime warranty
For more info on TDK call
800-645-6571
In New York 516-625-0100



3M
diskettes for as low as
\$1.21 each

3M Part #	CE quant. 100 price per disk (\$)
8SS00-Z	1.89
8SS00-Z	2.39
80S00-Z	2.74
80S00-1024-Z	2.74
5SS00-RH-Z	1.34
50S00-RH-Z	1.89
50S00-96RH-Z	2.79
50SHD-96-Z	4.99
3SSMD-Z	2.99

Lifetime warranty
For more info on 3M call
800-328-9438
In Minnesota 612-736-9524



Kodak
diskettes for as low as
\$1.30 each

Kodak Part #	CE quant. 100 price per disk (\$)
108-4284-Z	2.39
134-7376-Z	2.69
125-3763-Z	3.14
126-3769-Z	3.14
111-1806-Z	1.44
177-3688-Z	1.74
130-4344-Z	3.69
198-4806-Z	5.89
127-3382-Z	3.24

Lifetime warranty
For more info on Kodak call
313-967-1600
Monday-Friday 10am-4pm ET



Dysan
diskettes for as low as
\$1.53 each

Dysan Part #	CE quant. 100 price per disk (\$)
800501-Z	2.39
800605-Z	2.69
800803-Z	3.14
800839-Z	3.14
801187-Z	1.69
802060-Z	2.49
802067-Z	3.69
802914-Z	4.99
807821-Z	3.24

Lifetime warranty
For more info on Dysan call
800-552-2211
In California 408-970-6096

Be In Pictures

Continued from page 114

submit entries until May 15 for a special schools only judging in June, 1986. Schools are eligible for either judging. Baudville reminds entrants that movies need not be long; it's the individual's creativity that counts.

Baudville is a leading publisher of graphics and animation software for the Apple and Commodore 64 Computers. TAKE 1 (\$59.95) and supplemental libraries; Actors & Actions (\$30), Heroes & Villains (\$30), and Business (\$50) are available at specialty stores nationally.

For more information contact Baudville, 1001 Medical Park Drive, S.E., Grand Rapids, MI 49506, (616) 957-3036.

Mention that you read about it in the *Computer Shopper*. ●

Unique Paper Stacker

A unique new Paper Stacker has been introduced by U.S. Designs. The product has been designed to replace old-fashioned wire baskets currently used with most computer printers. The patented center slot supports and bends the first sheet of fan-fold paper resulting in double the stacking reliability. The Stacker is injection molded in high impact Polystyrene and has no moving parts. Available from the manufacturer for \$49.95.

For more information contact U.S. Designs, 7670 SW Barnard Drive, Beaverton, OR 97007.

Mention that you read about it in the *Computer Shopper*. ●

ALL OUR PRODUCTS HAVE MANUALS AND 90 DAY WARRANTIES

OUR PRODUCTS ARE
U.S.A.
ASSEMBLED & TESTED

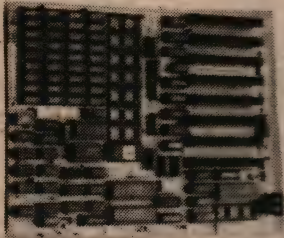
BTE INC.

CALL 602-867-8962
FOR ORDERS OR
FOR INFORMATION

SUPER COMPATIBLE PC/XT

- 256K TOTALLY IBM XT COMPATIBLE
- 8088 CPU, 4.77 MHZ, 8087 OPTIONAL
- 8 I/O EXPANSION SLOTS, 7 ROM EXPANSIONS
- RUNS ALL XT SOFTWARE - FLIGHT SIMULATOR, LOTUS, SYMPHONY, DB III, AUTO CAD II and AUTO CAD 3D

\$248



\$888⁰⁰

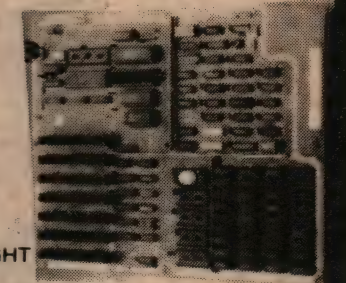


256K PC/XT, 2 DRIVES,
COLOR GRAPHICS CARD,
POWER SUPPLY, CASE,
KEYBOARD

130 WATT POWER SUPPLY W/FOUR
DRIVE LEADS **\$88⁰⁰**
CASE FOR PCXT **\$68⁰⁰**

IBM MPC/XT COMPATIBLE

- 1.04 MEG RAM EXPANDABLE ON BOARD
- 4164 (64K RAM) OR 41256 (256K RAM)
- 8088 PROCESSOR, 4.77 Mhz, 8087 OPTIONAL
- 8K ROM EXPANSION
- 8 I/O INTERFACE EXPANSION SLOTS
- COMPLETELY IBM/MXT COMPATIBLE - RUNS IBM/XT FLIGHT SIMULATOR, LOTUS, SYMPHONY, DB III, AUTO CAD ** and AUTO CAD 3D, and ALL OTHERS
- USES CONVENTIONAL IBM POWER SUPPLY AND KEYBOARD



\$258

FOR INFORMATION ON PC-AT COMPATIBLE ACCESSORIES - CALL
ATT: DEALERS - CALL FOR WHOLESALE PRICES!!!

IBM INTERFACE SPECIALS

- 512 K RAM CARD **\$68**
- MULTI I/O CARD - 2 DISC DRIVES, SERIAL, PARALLEL, CLOCK GAME **\$138**
- PARALLEL PRINTER CARD **\$48**
- SERIAL CARD **\$48**
- GAME ADAPTER **28**
- DISC CONTROLLER (4 DRIVES), W/CABLE **\$58**
- EPROM WRITER **\$148**
- REGULAR JOYSTICK **\$19**
- FANCY JOYSTICK **\$28**
- OUTLET W/SURGE **\$9.95**
- 85 FLOPPY DISC FILE **\$9.95**
- 70 FLOPPY DISC FILE **\$8.95**
- PRINTER CABLE **\$15.00**
- SERIAL CABLE **\$15.00**
- FLOPPY DISC CABLE **\$15.00**
- OTHER CABLES **- CALL**

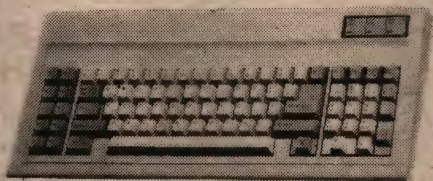
IBM DRIVES

- 1/2 HT. W/CNTLR TEAC 55 BV **\$88**
- 10 MEG 1/2 HT. W/CNTLR **\$498**
- 22 MEG 1/2 HT. W/CNTLR **\$688**
- 33 MEG W/CNTLR **\$1195**

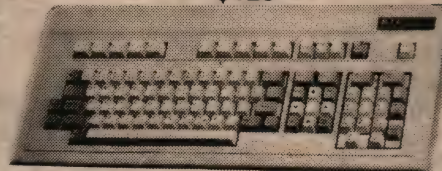
APPLE COMPATIBLES

- IIe COMPATIBLE MOTHER BOARD **\$268**
- IIe REPLACEMENT KEYBOARD **\$49**
- IIe DETACHABLE KEYBOARD **\$99**
- IIe COMPATIBLE CASE **59**
- POWER SUPPLY **\$39**
- II + COMPATIBLE MOTHER BOARD **\$195**
- II + FUNCTION AND NUMERIC KEYBOARD **\$59**
- II + DETACHABLE IBM STYLE KEYBOARD **\$89**
- EPROM WRITER **\$59**
- Z-80 CP/M CARD **\$38**
- GRAPPLER + COMPATIBLE PRINTER CARD **\$39**
- 80 COLUMN W/64 K IIe CARD **\$48**
- 80 COLUMN CARD **\$42**
- DISC CONTROLLER CARD **\$39**
- 16K MEMORY CARD **\$29**
- II + CASE **\$49**
- JOY STICK **\$19**
- FANCY JOY STICK **\$28**
- ALL CABLES **- CALL**
- 1/2 HEIGHT DISC DRIVE **\$119**
- MICRO SCI II +, IIe DRIVE **\$179**
- IIc DISC DRIVE **\$179**
- 10 MEG HARD DRIVE **\$795**

IBM STYLE LARGE RETURN KEYBOARD - \$75⁰⁰



KEYTRONIKS STYLE 5151 KEYBOARD \$125⁰⁰



PRINTERS EPSON

- LX 80 **\$228**
- FX 85 **\$368**
- FX 185 **\$469**
- OTHERS **- CALL**

CITIZEN

- MSP-10 **\$278**
- MSP-15 **\$409**
- OTHERS **- CALL**

OKIDATA

- 182 **\$328**
- 192 **\$365**
- 193 **\$579**

STAR

- SG 10 **\$228**
- SG 15 **\$367**



MONITORS AMDEK

- 310A **\$149**
- 300 **\$125**
- COLOR 500 **\$349**
- COLOR 600 **\$399**
- COLOR 700 **\$499**

TAXAN

- 115 GREEN **\$109**
- 116 AMBER **\$114**
- 121 GREEN (IBM) **\$125**
- 122 AMBER (IBM) **\$135**
- 410 COLOR (IBM) **\$395**
- 420 COLOR (IBM) **\$435**
- 440 COLOR (IBM) **\$560**

ZENITH

- ZVM 122 AMBER **\$89**
- ZVM 123 GREEN **\$85**
- ZVM 124 AMBER (IBM) **\$128**
- ZVM 131 COLOR **\$275**
- ZVM 133 RGB COLOR **\$389**
- ZVM 135 RGB COLOR **\$448**
- ZVM 136 HI RES. COLOR **\$578**

Apple II + IIe External Keyboard
\$89⁰⁰

MAIL TO BTE, Inc.
P.O. Box 30705C
PHOENIX, AZ 85046-0705
PHONE (602) 867-8962

MASTER CHARGE, VISA, ARE WELCOME
\$5.00 MINIMUM SHIPPING & HANDLING

384K MULTIFUNCTION CARD

- 384K MEMORY CAPACITY WITH SIX BANKS 4164 x 9 DYNAMIC RAM.
- ONE RS-232C ASYNCHRONOUS ADAPTER.
- ONE CLOCK/CALENDAR WITH NI-CD BATTERY BACK UP.
- ONE PARALLEL PRINTER SPOOLER.
- ONE GAME ADAPTER.

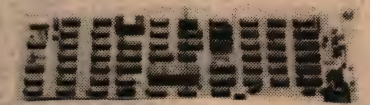
\$128⁰⁰



COLOR GRAPHIC DISPLAY CARD

- DRIVES RGB MONITOR, COMPOSITE COLOR MONITOR OR COMPOSITE MONOCHROME MONITOR SIMULTANEOUSLY
- TEXT MODE:
40 COL.x25 ROWS, COLOR OR B/W
80 COL.x25 ROWS, COLOR OR B/W
- GRAPHICS MODE:
320 DOTS x 200 LINES, COLOR OR B/W
640 DOTS x 200 LINES, B/W
- LIGHT PEN INTERFACE AVAILABLE.

\$93⁰⁰



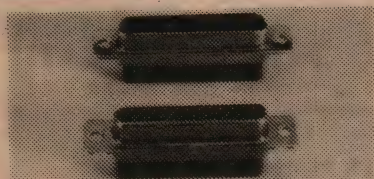
MONOCHROME GRAPHIC PRINTER CARD HERCULES COMPATIBLE

- TEXT MODE: 80 COLUMNS x 25 ROWS
- GRAPHIC MODE: 720 DOTS x 348 DOTS
- PARALLEL PRINTER INTERFACE BUILT-IN.

\$128⁰⁰



D-SERIES CONNECTORS



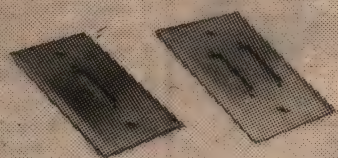
EMPTY CRIMP SHELLS

PART #	PRICE/QTY		
	1-49	50-99	100-UP
C9P	0.86	0.78	0.72
C9S	0.90	0.82	0.75
C15P	0.88	0.80	0.73
C15S	0.92	0.84	0.77
C25P	0.90	0.82	0.75
C25S	0.94	0.85	0.78
C37P	1.04	0.95	0.87
C37S	1.06	0.96	0.88
C50P	1.14	1.04	0.95
C50S	1.20	1.09	1.00



CONTACTS FOR EMPTY CRIMP SHELLS

PART #	PRICE/QTY		
	1-99	100-999	1000-UP
CP20P	0.08	0.07	0.06
CP20S	0.10	0.09	0.08



RS-232 DB-25 WALL PLATES

PART #	PRICE/QTY		
	1-24	25-49	50-UP
WP-1	2.95	2.66	2.36
WP-2	3.45	3.11	2.76



CONTACT EXTRACTOR TOOL

extracts contacts from D crimp shells
PART # EX-1 2.75 EACH

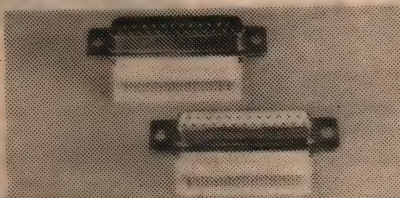


CRIMPING TOOL

for crimping D series contacts
PART # CT-1645 79.95 EACH

D-SERIES HARDWARE

PART #	PRICE/QTY		
	1-49	50-99	100-UP
MDH-1	0.55	0.45	0.35
FDH-1	0.85	0.75	0.65



RIBBON CABLE CRIMP ON D CONNECTORS

PART #	PRICE/QTY		
	1-49	50-99	100-UP
IDC-9P	4.00	3.64	3.33
IDC-9S	4.28	3.89	3.57
IDC-15P	4.86	4.42	4.05
IDC-15S	5.24	4.76	4.37
IDC-25P	5.24	4.76	4.37
IDC-25S	5.82	5.29	4.85
IDC-37P	8.22	7.47	6.85
IDC-37S	8.92	8.11	7.43
IDC-50P	19.71	18.40	17.25
IDC-50S	23.87	20.46	19.09



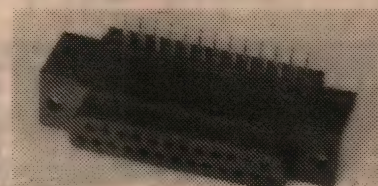
P.C. MOUNT STRAIGHT

PART #	PRICE/QTY		
	1-49	50-99	100-UP
P9P	1.58	1.44	1.32
P9S	2.60	2.36	2.17
P15P	2.10	1.91	1.75
P15S	3.66	3.33	3.05
P25P	2.90	2.64	2.42
P25S	4.38	3.98	3.65
P37P	4.30	3.91	3.58
P37S	8.18	7.44	6.82
P50P	5.50	5.00	4.58
P50S	10.70	9.73	8.92



RS-232 GENDER CHANGERS

PART #	PRICE/QTY	
	1-9	10-UP
AGC-M	9.95	7.95
AGC-F	9.95	7.95



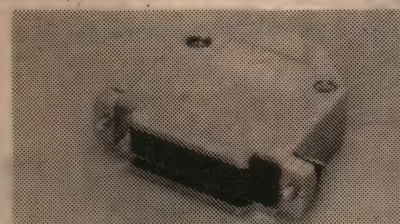
P.C. MOUNT RIGHT ANGLE

PART #	PRICE/QTY		
	1-49	50-99	100-UP
R9P	2.54	2.31	2.12
R9S	2.60	2.36	2.17
R15P	2.98	2.71	2.48
R15S	3.10	2.82	2.58
R25P	3.72	3.38	3.10
R25S	3.00	2.73	2.50
R37P	4.70	4.27	3.92
R37S	4.90	4.45	4.08
R50P	9.72	8.84	8.10
R50S	11.00	10.00	9.17



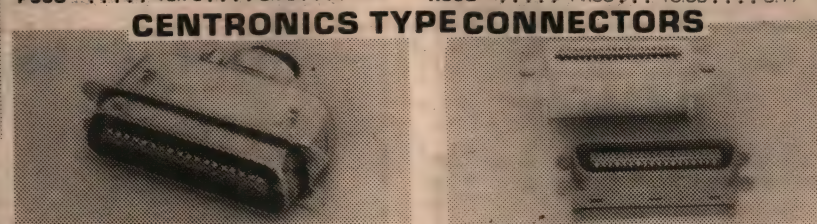
SOLDER POT TYPE

PART #	PRICE/QTY		
	1-49	50-99	100-UP
9P	1.44	1.31	1.20
9S	1.94	1.76	1.62
15P	1.96	1.78	1.63
15S	2.60	2.36	2.17
DB-25P	1.85	1.60	1.45
DB-25S	2.10	1.85	1.65
37P	4.00	3.64	3.33
37S	5.20	4.73	4.33
50P	5.08	4.62	4.23
50S	7.80	7.09	6.50



GRAY HOODS

PART #	PRICE/QTY		
	1-49	50-99	100-UP
GH-9	1.02	0.93	0.85
GH-15	1.04	0.95	0.87
GH-25	.95	0.80	0.66
GH-37	1.18	1.07	0.98
GH-50	1.32	1.20	1.10



CENTRONICS TYPE CONNECTORS

SOLDER POT TYPE

PART #	PRICE/QTY		
	1-49	50-99	100-UP
CEN-36P	4.00	3.64	3.33
CEN-36S	4.20	3.82	3.50
CEN-36SCM	3.50	3.18	2.92

RIBBON CABLE CRIMP ON

PART #	PRICE/QTY		
	1-49	50-99	100-UP
IDC-36P	6.00	5.45	5.00
IDC-36S	7.90	7.18	6.58

SHEILDED HOOD

PART #	PRICE/QTY		
	1-49	50-99	100-UP
SH-25	1.35	1.23	1.13

RIBBON CABLE CONNECTORS

IDH SHROUDED HEADERS

P.C. MOUNT RIGHT ANGLE

PART #	PRICE/QTY		
	1-49	50-99	100-UP
IDH-10R	0.80	0.72	0.64
IDH-20R	1.20	1.08	0.96
IDH-26R	1.50	1.35	1.20
IDH-34R	2.00	1.80	1.60
IDH-40R	2.40	2.16	1.92
IDH-50R	2.95	2.66	2.36
IDH-60R	3.86	3.47	3.09

P.C. MOUNT STRAIGHT

PART #	PRICE/QTY		
	1-49	50-99	100-UP
IDH-10	0.80	0.72	0.64
IDH-20	1.15	1.04	0.92
IDH-26	1.50	1.35	1.20
IDH-34	1.95	1.76	1.56
IDH-40	2.30	2.07	1.84
IDH-50	2.85	2.57	2.28
IDH-60	3.45	3.11	2.76

P.C. MOUNT STRAIGHT

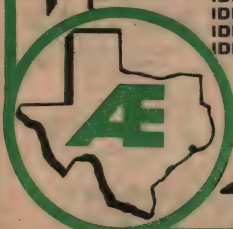
PART #	PRICE/QTY		
	1-49	50-99	100-UP
IDH-10B	0.30	0.27	0.25
IDH-14B	0.42	0.38	0.35
IDH-16B	0.48	0.44	0.40
IDH-20B	0.60	0.55	0.50
IDH-26B	0.78	0.71	0.65
IDH-34B	1.02	0.93	0.85
IDH-40B	1.20	1.09	1.00
IDH-50B	1.50	1.36	1.25
IDH-60B	1.80	1.64	1.50
IDH-80B	2.40	2.18	2.00

P.C. MOUNT RIGHT ANGLE

PART #	PRICE/QTY		
	1-49	50-99	100-UP
IDH-10BR	0.38	0.35	0.32
IDH-14BR	0.53	0.48	0.44
IDH-16BR	0.61	0.55	0.51
IDH-20BR	0.76	0.69	0.63
IDH-26BR	0.99	0.90	0.82
IDH-34BR	1.29	1.17	1.08
IDH-40BR	1.52	1.38	1.27
IDH-50BR	1.90	1.73	1.58
IDH-60BR	2.28	2.07	1.90
IDH-80BR	3.04	2.76	2.53

1 x 1 spacing, gold plated pins

dual row 1 x 1 spacing, gold plated pins



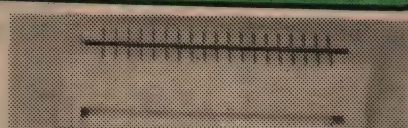
ALTEx ELECTRONICS

RIBBON CABLE CRIMP ON CONNECTORS



IDS SOCKET TYPE

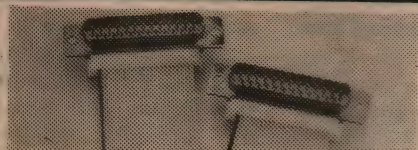
PART #	1-49	50-99	100-UP
IDS-10	1.15	1.04	0.92
IDS-14	1.35	1.22	1.08
IDS-16	1.45	1.31	1.16
IDS-20	1.50	1.35	1.20
IDS-26	2.40	2.16	1.92
IDS-34	2.90	2.61	2.32
IDS-40	3.50	3.15	2.80
IDS-50	4.25	3.83	3.40
IDS-60	5.80	5.22	4.64



IDE EDGE CARD TYPE

PART #	1-49	50-99	100-UP
IDE-10	1.90	1.71	1.52
IDE-14	2.00	1.80	1.60
IDE-20	2.25	2.03	1.80
IDE-26	2.65	2.39	2.12
IDE-34	2.95	2.66	2.36
IDE-40	3.50	3.15	2.80
IDE-50	4.25	3.83	3.40

RIBBON CABLE ASSEMBLYS



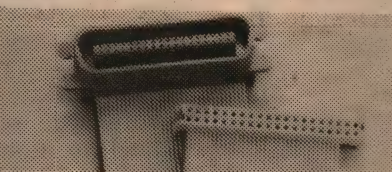
D-SERIES RIBBON CABLES

PART #	PRICE
9P-9P	8.00 + 18 per foot
9P-9S	8.28 + 18 per foot
9S-9S	8.56 + 18 per foot
15P-15P	9.72 + 30 per foot
15P-15S	10.10 + 30 per foot
15S-15S	10.48 + 30 per foot
25P-25P	10.50 + 50 per foot
25P-25S	11.10 + 50 per foot
25S-25S	11.30 + 50 per foot
37P-37P	16.44 + 74 per foot
37P-37S	16.95 + 74 per foot
37S-37S	17.80 + 74 per foot

GENDER MENDERS

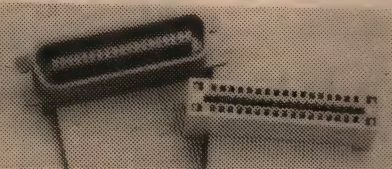
PART #	PRICE
GM-25	22.50 + 50 per foot

25 pin RS-232 cable with a male and female connector on each end.



CENTRONICS TO IDS-40 RIBBON CABLES

PART #	PRICE
36P-40S	9.50 + 72 per foot



CENTRONICS TO IDE-34 RIBBON CABLES

PART #	PRICE
36P-34E	10.25 + 68 per foot

printer cable for TRS-80 computers

IDE EDGE CARD TO IDE EDGE CARD RIBBON CABLES

PART #	PRICE
10E-10E	3.80 + 20 per foot
14E-14E	4.00 + 28 per foot
20E-20E	4.50 + 40 per foot
26E-26E	5.30 + 52 per foot
34E-34E	5.90 + 68 per foot
40E-40E	7.00 + 80 per foot
50E-50E	8.50 + 100 per foot

IDH WIRE WRAP HEADERS

1 x .1 spacing, 3 level gold plated pins

WIRE WRAP STRAIGHT

PART #	1-49	50-99	100-UP
IDH-10W	1.50	1.35	1.20
IDH-20W	2.55	2.30	2.04
IDH-26W	3.20	2.88	2.56
IDH-34W	3.75	3.38	3.00
IDH-40W	4.50	4.05	3.60
IDH-50W	5.50	4.95	4.40

WIRE WRAP RIGHT ANGLE

PART #	1-49	50-99	100-UP
IDH-10WR	2.45	2.21	1.96
IDH-20WR	2.60	2.34	2.08
IDH-26WR	3.25	2.93	2.60
IDH-34WR	3.80	3.42	3.04
IDH-40WR	4.65	4.19	3.72
IDH-50WR	5.55	5.00	4.44

IDP PLUG CONNECTOR

PART #	1-49	50-99	100-UP
IDP-20P	3.95	3.16	2.53
IDP-34P	4.95	3.96	3.17
IDP-50P	5.95	4.76	3.81

mates with IDS type connectors

IDD DIP PLUG CONNECTOR

PART #	1-49	50-99	100-UP
IDD-14	1.30	1.17	1.05
IDD-16	1.65	1.49	1.34
IDD-24	2.25	2.03	1.82
IDD-40	3.90	3.51	3.16

for plugging into IC sockets

CENTRONICS 36 PIN RIBBON CABLES

PART #	PRICE
36P-36P	12.00 + 72 per foot
36P-36S	13.45 + 72 per foot
36S-36S	15.90 + 72 per foot

IDS SOCKET TO IDS SOCKET RIBBON CABLES

PART #	PRICE
10S-10S	2.30 + 20 per foot
14S-14S	2.70 + 28 per foot
16S-16S	2.90 + 32 per foot
20S-20S	3.00 + 40 per foot
26S-26S	4.80 + 52 per foot
34S-34S	5.80 + 68 per foot
40S-40S	7.00 + 80 per foot
50S-50S	8.50 + 100 per foot
60S-60S	11.60 + 120 per foot

IDS SOCKET TO IDE EDGE CARD RIBBON CABLES

PART #	PRICE
10S-10E	3.05 + 20 per foot
14S-14E	3.35 + 28 per foot
20S-20E	3.75 + 40 per foot
26S-26E	5.05 + 52 per foot
34S-34E	5.85 + 68 per foot
40S-40E	7.00 + 80 per foot
50S-50E	8.50 + 100 per foot

IDD DIP PLUG TO IDD DIP PLUG RIBBON CABLES

PART #	PRICE
14D-14D	2.60 + 28 per foot
16D-16D	3.30 + 32 per foot
24D-24D	4.40 + 48 per foot
40D-40D	7.80 + 80 per foot

PARALLEL PRINTER CABLES

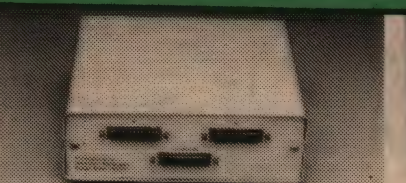
IBM PC TO PARALLEL PRINTER

PART #	PRICE	10-UP
PPC-301-5	19.95	16.95
PPC-301-10	24.95	19.95

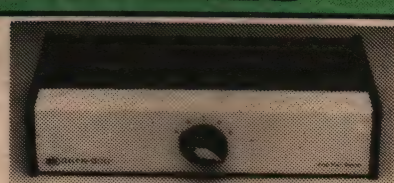
SERIAL/PARALLEL DATA TRANSFER SWITCHES



PART #	DESCRIPTION	PRICE
AB-25	RS-232 SWITCHBOX switches all 25 lines; two positions for interfacing; two printers to one computer or one printer to two computers	88.00



PART #	DESCRIPTION	PRICE
AB-36	PARALLEL SWITCHBOX 138.00 switches all 36 lines two positions for interfacing two computers to one printer or two printers to one computer	



PART #	DESCRIPTION	PRICE
AB-5	RS-232 5 PORT SWITCHBOX 149.95 switches 12 lines 5 positions for connecting any one of five terminals to one serial modem or five parallel printers to one computer or vice versa	

1-800-531-5369

IN TEXAS CALL (512) 828-0503

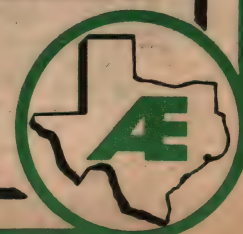
ALTEX ELECTRONICS

10731 Gulfdale San Antonio, Texas 78216

C.O.D.—CHECK—MONEY ORDER—VISA—MASTERCARD

ADD \$3.00 SHIPPING CHARGES FOR ORDERS UNDER \$50.00.

TEXAS RESIDENTS ADD 5% SALES TAX.



Blankenship Continued from page 116

ter. For applications where speed is important Assembler is best. For applications requiring tight compact code, I use Integer BASIC. For exotic I/O applications Forth is probably best. But for medium length BASIC programs BBASIC is easier, and more powerful than Applesoft.

I have saved the best feature of BBASIC for last though. The price is \$25, with a money back guarantee. In addition, the documentation specifically states, "I believe people are

willing to pay fair prices for quality software after reading this documentation. Try my BASIC and if you like it, give copies (of the diskette without the written documentation) to your friends." Friends who like BBASIC are requested to send \$12.50 to become a registered user and receive the documentation, or \$25 for the documentation and the latest update of BBASIC. Users are on the honor system to use BBASIC only if they have paid for it. A free newsletter is available for registered users. It includes information on updates, correc-

tions for bugs, clarifications for the documentation, and sample programs.

Users are encouraged to market programs written in BBASIC, and a very reasonable policy has been set up. (Free as long as a full copy of BBASIC is provided to the user and the user is informed how to purchase BBASIC, \$100 if the program is copy-protected.) Since BBASIC was released in 1984, several updates have become available. A PRODOS version is available (upgrade price \$15), and a HIRES character editor/utility disk is available for \$30.

BBASIC is excellent for an intermediate level BASIC programmer. Structured programs are much easier to read and debug, and BBASIC's routines really do make Applesoft a structured language. If you are a novice programmer, I would recommend also obtaining the book *Structured Programming in BBASIC* (presently available only in draft form).

Product: Blankenship BASIC

Author: John Blankenship

Price: \$25 includes disk and 8 page leaflet with commands, \$22 - 177 page draft manual, *Structured Programming in BBASIC*, and diskette.

Interests: Anybody who programs on the Apple in Apple-soft BASIC.

Summary: Good idea, but could use some enhancements. Available from: John Blankenship, P.O. Box 47934, Atlanta, GA 30362

```

LIST
1000 REM PROGRAM #2 - APPLESOFT VERSION
1010 REM (C) 1985 By Philip Chien
1020 REM All rights reserved
1030 REM
1040 REM
1050 GOSUB 1270
1060 A%(0) = 1
1070 B%(0) = 1
1080 C%(0) = 1
1090 Y = 2
1100 GOSUB 1370
1110 GOSUB 1370
1120 REM MAIN LOOP
1130 FOR X = 0 TO N
1140 C%(X) = A%(X) + B%(X)
1150 IF C%(X) > 9 THEN A%(X + 1) = A%(X + 1) + 1: C%(X) = C%(X) - 10
1160 NEXT
1170 IF C%(N) > 0 THEN 1250
1180 GOSUB 1370
1190 Y = Y + 1
1200 FOR X = 0 TO N
1210 A%(X) = B%(X)
1220 B%(X) = C%(X)
1230 NEXT
1240 GOTO 1120
1250 PRINT : PRINT "FINISHED! ";Y;" CYCLES"
1260 END
1270 REM SETUP
1280 DIM A%(255),B%(255),C%(255)
1290 TEXT
1300 INPUT "Max number of places?":N
1305 PRINT
1310 FOR T = 0 TO N
1320 A%(T) = 0
1330 B%(T) = 0
1340 C%(T) = 0
1350 NEXT
1360 RETURN
1370 REM PRINT ARRAY
1380 FL = 0
1390 FOR R = N - 1 TO 0 STEP -1
1400 IF NOT FL AND C%(R) = 0 THEN PRINT " ": GOTO 1430
1410 FL = 1
1420 PRINT C%(R):
1430 NEXT
1440 PRINT
1450 RETURN

```

```

1000 REM PROGRAM #2 - BBASIC VERSION
1010 REM (C) 1985 By Philip Chien
1020 REM All rights reserved
1030 REM
1040 REM
1050 COMPILE
1060 PERFORM "SETUP"
1070 A%(0) = 1
1080 B%(0) = 1
1090 C%(0) = 1
1100 Y = 2
1110 PERFORM "PRINT"
1120 PERFORM "PRINT"
1130 LOOP
1140 FOR X = 0 TO N
1150 C%(X) = A%(X) + B%(X)
1160 IF C%(X) > 9 THEN A%(X + 1) = A%(X + 1) + 1: C%(X) = C%(X) - 10
1170 NEXT
1180 EXITWHEN C%(N) > 0
1190 PERFORM "PRINT"
1200 Y = Y + 1
1210 FOR X = 0 TO N
1220 A%(X) = B%(X)
1230 B%(X) = C%(X)
1240 NEXT
1250 ENDLOOP
1260 PRINT "FINISHED! ";Y;" CYCLES"
1270 END

1280 DEFINE "SETUP"
1290 DIM A%(255),B%(255),C%(255)
1300 TEXT
1310 INPUT "Max number of places?":N
1320 FOR T = 0 TO N
1330 A%(T) = 0
1340 B%(T) = 0
1350 C%(T) = 0
1360 NEXT
1370 FINISH

1380 DEFINE "PRINT"
1390 FL = 0
1400 FOR R = N - 1 TO 0 STEP -1
1410 WHEN NOT FL AND C%(R) = 0 THEN
1420 PRINT " ":
1430 ELSE
1440 FL = 1
1450 PRINT C%(R):
1460 ENDWHEN
1470 NEXT
1480 PRINT
1490 FINISH

```

RUN
Results to Program #2
(Same results for both versions)

Max number of places?5

1
1
2
3
5
8
13
21
34
55
89
144
233
377
610
987
1597
2584
4181
6765
10946
17711
28657
46368
75025

FINISHED! 25 CYCLES

]

MacUniverse Continued from page 61

BUSINESS - Mac Office and business use of Macs.

COMMUNICATIONS - Software and hardware information about communications.

DOWNLOADS - Notices of new files to download.

GAMES - Discuss games, trade hints, etc.

HARDWARE - General Mac hardware topics.

KERMIT - Kermit-related messages.

LISA/X - For Lisa and Mac XL owners.

NEWS - Apple news, new product info, etc.

SIG-HELP - Ask questions about using MACSIG.

SOFTWARE - General Mac software topics.

SUGGESTIONS - MACSIG suggestion box.

To read a message, you must access a specific category and then select the read option. As of August 25th, there were only two or three messages in each category.

Number five, Catalog of Files/Programs, consist of files and programs that can be downloaded. These files are either public domain or shareware. They may be received via regular ASCII text transfers, or under the Kermit protocol for error-free downloading. To facilitate downloading two terminal programs, MacKermit and Red Ryder 5.0, are available here free for the downloading or at low cost via mail order. All of the files I examined were already available on Compuserve.

The Macintosh SIG comes at special per-minute rates. Here are current per-minute SIG rates that apply to MACSIG:

Baud Rate	Prime Time	Non-Prime Time
300	.18	.10
1200	.23	.13
2400	.25	.15

Prime time is 7am to 6pm, Monday through Friday; non-prime is all other hours. For complete details on all rates for use of services of The Source, type the command RATES at command level.

Microsoft Basic Update

For those of you who publish Microsoft Basic programs will be glad to know that Microsoft has released a runtime version of Basic. This runtime version is fully compatible with Basic 2.0 and can run programs that have been saved in either the protected or compressed mode. An editor is not provided so it cannot be used to modify the published program. The distribution license fee is \$100 for one year of unlimited distribution. Contact Microsoft for more information.

MacUser

A new Mac magazine called *MacUser* has appeared. It looks quite slick with a lot of full color graphics and charts. The people behind it are quite knowledgeable. The editor is Neil Shapiro, the head SYSOP of Compuserve's Macintosh SIG. Articles included detail reviews of Jazz and Excel; an overview of available file servers; a tutorial on changing and designing icons; and using the Mac to print graphics on a t-shirt. It is not cheap, a year's subscription cost \$21.84, but it looks worthwhile.

Bug Of The Month

Recently I was using Monogram's Dollar and \$ense program. On Tuesday night I balanced my checkbook and wrote some more checks. The program said I had a running balance of over \$1500. The next day I got a telephone call from my bank telling me I was seriously overdrawn. Impossible I said, I just balanced my account. Well I doubled check and Dollar and \$ense again said I had a healthy cash balance. I then manually determined my balance. The bank was correct. I called Monogram and learned this was a known bug. If you run the Extend option, your current balance becomes unreliable. There are two alternatives to fixing the balance; either (1) send a data disk to Monogram and they will repair it for you or (2) if you complain long enough they will send you a repair disk. Unfortunately neither is very satisfactory. Your Universe Master happens to believe in financial privacy. I would no more send a data disk full of detailed financial information about myself to a stranger than I would allow *Computer Shopper* to reprint my Income Tax Returns. Having the repair disk sent is not that much better. The instructions that came with it are very poor. So I again called Monogram (another long distance phone call) and was told the repair disk that was sent to me would not do the repair. According to Monogram's technical support I was supposed to enter another debit to lower my current balance to the correct amount. Then balance the checkbook. As the balance will be off because of the new debit, force the balance.

Monster Macs

It seems a lot of third party vendors are offering massive memory upgrades for Macs. These upgrades take the Mac up to 2 meg of memory. This means you can have a super large ram disk or eight applica-

Continued on page 121

MacUniverse

Continued from page 120

tions running in Switcher simultaneously. Whether or not you should buy one of these upgrades now depends on what you think Apple will do. Your Universe Master keeps hearing two conflicting rumors. Rumor number one is that Apple will offer an official memory upgrade early next year to owners of present Macs. Rumor number two says that except for the new ROM and double sided disk drives, the current Mac is frozen. If you decide to get a memory upgrade, there are some limitations: (1) the upgrade is incompatible with Hyperdrive (they both need the same space); (2) your Mac will need a fan to cool the extra chips down; and (3) many programs currently available cannot utilize the extra RAM.

Among the companies installing these upgrades are Levco and MacMemory Electronics. Levco calls its units the Mac Monster and only work on an Apple 512K Mac or 128 Mac that has been upgraded to 512K with Levco's upgrade. It charges \$499.95 for the bare expansion board, \$599.95 for a 1 megabyte upgrade, \$699.95 for 1.5 megabyte upgrade, \$799.95 for the 2 megabyte upgrade, and \$899.95 for the 2 megabyte upgrade installed in your Mac. MacMemory Electronics calls its upgrade the Max. It charges \$795 to upgrade a 128K Mac to 1.5 megabyte, \$645 to upgrade a 512K Mac to 1.5 megabyte.

The Head Mouse

The strangest device I have heard about in a long time is the View Control System by Personics. This is a headset that replaces the mouse. By wearing a headset and head movement the user can control cursor movement. The unit comes with a button pad that is used to clicking and dragging. Replacing the mouse is not cheap. The View Control System cost \$199 and comes with a 30 day money back guarantee. If anyone has personal experience with one, please let me know what you think of it.

HyperDrive Update

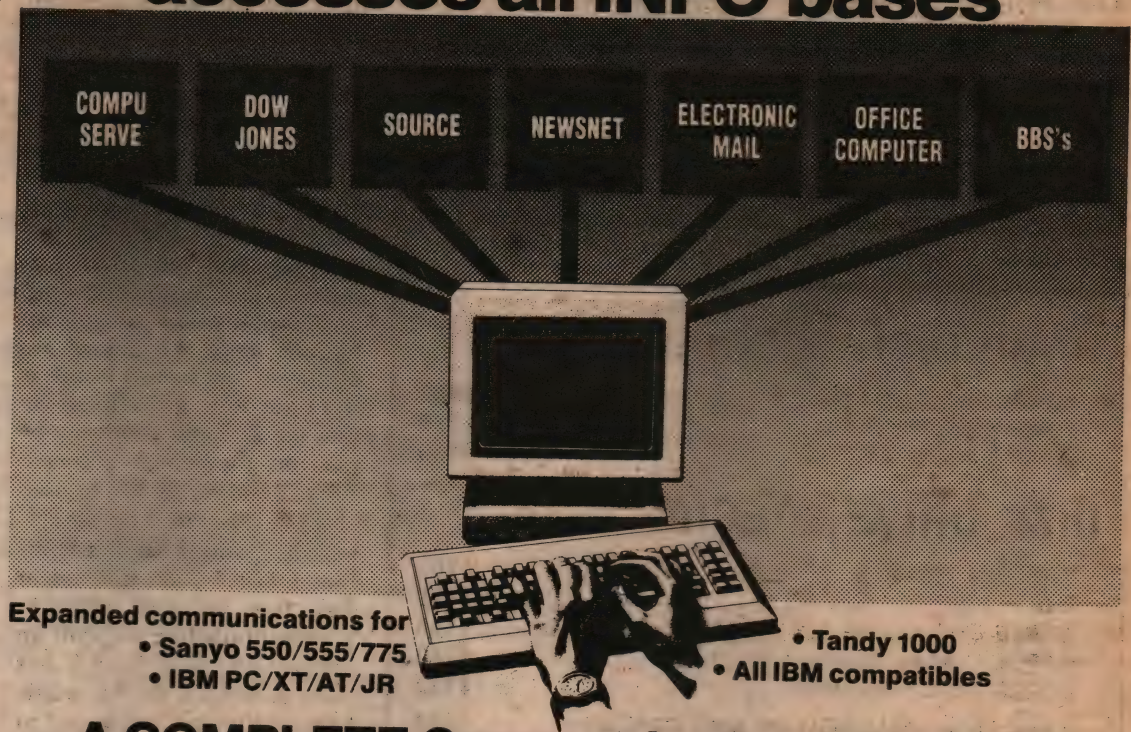
General Computer Company has issued two press releases regarding its HyperDrive hard disk. The first announcement was for its new HyperDrive 20. Similar to the original HyperDrive, this unit has twenty megabytes of storage. Shipping was supposed to start September 6 and it will cost \$2,795. For owners of the present 10 megabyte HyperDrive, General Computer has not forgotten you. Starting in early December an upgrade will be available for \$895.

The second announcement dealt with software. First General Computer has improved its backup and print spooling software. Improvements in the backup capabilities include the ability to make incremental backup of all files that have created or modified since the last backup and the ability to backup individual

Continued on page 122

INTELLICOM»

accesses all INFO bases



A COMPLETE Communications System!

Now you can tap any of the countless telephone data based INFO sources...and then **FILE them all away for use later.** Suddenly, your computer is the smartest terminal around because INTELLICOM emulates such terminals as:

- Digital VT52/VT100
- TeleVideo 910 • ADM3A/5
- ADDS Viewpoint/25
- CompuServe Executive
- Simple TTY
- TeleVideo 925

Now you can transfer both binary and text files, using simple ASCII, ASCII Capture, Xon/Xoff, XMODEM (both

Cheksun and CRC are supported) or CompuServe A Protocols. Operate at any speed up to 4800 (Sanyo) or 9600 baud (IBM PC) without ever being outdated as higher speed/lower priced modems are introduced.

Simple menu selections, with a built-in HELP facility keep it easy forever. And our expert mode will allow you to even bypass the menus. Autodial directories (Hayes or equivalent modems) are supported along with simultaneous printing. Our built-in DOS WINDOW will actually let you run another program from within INTELLICOM (192K min. ram).

For \$10 more, we will supply you with the host support code for the error checking protocol on DecSystem 10/20 or VAX...and save your company a bundle!

Additional features: Variable Buffer Size reduces disk activity, while maximizing RAM capacity. Anchor Mark XII modem compatible. BATCh file utility program included. Persistence feature for autodialing, Auto Logon. And more!

Best of all, the entire versatile INTELLICOM package costs you only **\$69.95 COMPLETE!** RUSH \$15 today and you'll receive a fully functional demo disk that lets you check it all out. If you order INTELLICOM, simply return the demo disk and we'll deduct your \$15 from the low \$69.95 purchase price.

**DON'T DELAY!
ORDER TODAY!
RETURN UPS SHIPMENT
GUARANTEED! HURRY!**

ONLY
\$69.95

Rush \$15 today—get demo disk by return mail!
Your \$15 will be credited towards ultimate purchase price of \$69.95!

ORDERS NOW BEING ACCEPTED FOR

MXREF

...the ultimate cross reference utility program

Now reduce development time with MXREF...a complete listing of all variables, keywords, quoted strings, constants and referenced line numbers...all referenced precisely to where they appear in your program.

You'll never have to search for "AS"...or wonder why your program

doesn't run after deleting line 760—after searching out a GOTO 760 in line 3150.

Direct cross reference listing (and optionally, a neatly formatted and paged program listing) to either the printer, screen or selected disk file are included. System requirements: MSDOS 1.1 or more, 128K, one disk drive, and a printer.

Hurry! Order your MXREF today! Cut your referencing time and activity to zero!

NOW
\$69.95

COMPUTER TOOLBOX inc.

MasterCard/VISA/COD orders accepted. Specify computer and DOS version when ordering. Connecticut residents add 7 1/2% sales tax. Add \$5 shipping for all orders.

1325 East Main Street, Waterbury, CT 06705
In Connecticut call: 597-0273

ORDER
1-800-321-DATA
TOLL FREE

APPLE 9 TRACK TAPE DRIVES

EXCHANGE DATA WITH MINIS & MAIN FRAMES

- DATA COLLECTION
- DATA REDUCTION
- MAILING LISTS
- GOV'T TAPES
- DISK BACKUP

- LANDSAT
- SEASAT
- E-COM
- ZIP+4
- CRIS



EXPAND YOUR APPLE TO READ/WRITE 9-TRACK MAG TAPES IN STANDARD ANSI-IBM 800 BPI (NRZI) FORMAT.

- 800 BPI NRZI DRIVES WITH CONTROLLER AND SOFTWARE From \$1200
- Controller and Software Alone \$900

Request Full Brochure

ELECTROVALUE INDUSTRIAL INC.

P.O. BOX 376 - CS
MORRIS PLAINS, NJ 07950



201/267-1117

MacUniverse
Continued from page 121

files. The print spooling functions allow the user to use part of the file space for print spooling. This will allow the user to get back control of the computer quicker. Secondly General Computer announced a software maintenance agreement. For \$49, General Computer promises to mail all software enhancements and software packages directly to the

end user thus ensuring that the user will always have up to date software.

Compuserve Files Of The Month

This month I have two useful files to pass on. One is a simple database, the other a mini-finder.

The database is called Quick File and is a stand-alone application. The best way to describe the program is to say it is a computerized Rolodex system. Upon starting the pro-

gram you are presented with a blank card. Each card can hold 10 lines of 36 characters. To find the right card, the program has a simple find function. This program has been dedicated to the public domain. It can be found in MAUG's DL1 database under name QUICK-F.BIN and PPN, 75056,1733.

The mini-finder is called WayStation 1.1. It supports desk accessories and allows applications on multiple disks (or hard disk volumes) to be configured. This version allows up to 27 applications to be configured (only the names are displayed, not icons.) It differs from the other mini-finders in that the 27 applications can be seen on the screen at once. There is no scroll bar to use.

If WayStation is on the system disk, and if Apple's Mini-Finder is NOT on the system disk, then you will return to WayStation when you quit an application. WayStation has been dedicated to the public domain. It can be found in MAUG's DL1 database under name WAY-STA.BIN and PPN, 70001,1011.

Products Mentioned In This Column

Dollar and Sense
Monogram
8295 La Cienega Blvd.
Inglewood, CA 90301
(213) 215-0529

The Head Mouse
Personics Corp.
2352 Main St.
Building 2
Concord, MA 01742
617/897-1575

HyperDrive
General Computer Company
215 First Street
Cambridge, MA 02142
(617) 492-5500

MacUser
MacUser Publications
25 West 39th Street
New York, NY 10018

The Max Memory Upgrade
MacMemory Electronics
Suite 28
500 W. Middlefield Rd.
Mountain View, CA 94043
(415) 964-4176

Monster Mac Memory Upgrade
Levco
Suite C-203
6160 Lusk Blvd.
San Diego, CA 92121
(619) 457-2011

Quick File
A public domain database
Compuserve MAUG Database
File Name: QUICKF.BIN
PPN, 75056,1733
Source Telecomputing Corp.
1616 Anderson Road
McLean, VA 22102
(703)734-7500

WayStation
A public domain mini-finder
Compuserve MAUG Database
File Name: WAYSTA.BIN
PPN: 70001,1011

Copy Protection
Continued from page 62

increase the costs to all and will not solve the problem.

One of most brazen methods of profiteering is represented by vendors who offer by mail "returnable software." A so-called restocking fee is charged for any returned packages, usually about 25 percent of the discount price. This is of course only a thinly-disguised method for inveigling people into stealing copies on their own while "evaluating" the software. All at the expense of the copyright owner.

This scam is more repugnant than individual privateering, because it commercializes the process. It is on a par with international copyright infringement as practiced in places like Hong Kong, where one can walk into a computer shop and openly buy any software package, Xerox'd documentation and all, for little more than the cost of the disk.

One of the saving graces of small scale piracy is that it is usually committed for the use of the pirates themselves; there is a code of honor by which fellow-pirates trade or give away copies, rather than selling them.

Now, with multiuser licens-

Continued on page 130

HARD DISK SPECIAL

10MB Kit for IBM PC	\$499
20MB Kit for IBM PC	\$750
20MB for IBM AT	\$550

DISK DRIVE SPECIAL

TANDON TM100-2	\$105
Half Height for IBM PC	\$95
APPLE Compatible full height	\$115
APPLE Compatible half height	\$110
APPLE IIC Compatible	\$120
HARD DISK CONTROLLER AND CABLES	\$225
IBM PC, XT, AT	CALL

DEALER INQUIRIES WELCOME

SIGTECH

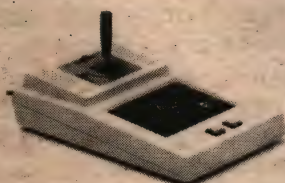
8824 SHIRLEY AVE. #17
NORTHRIDGE, CA 91324

CALL TOLL FREE:
California Residents

1-800-422-4626
Call 1-800-592-7300

**We Bring The Joy Of Owning
A Personal Computer To A New Height!**

**THE
FUN
PAD**



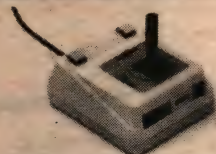
\$69.95

- ★ Two Accessories in One Convenient Package
 - ★ Runs All Software Available for KOALA Pad
 - ★ Joystick has Fine Tuning, Self Centering or Free Floating Operation
- PART NO. 084920 - Apple II/II+ /Ile
084921 - IBM

\$245.00

- ★ 105 Characters Per Second
 - ★ High Resolution Graphics
 - ★ Friction or Push Tractor Feed
 - ★ Centronics Parallel Interface
 - ★ 2K Standard Buffer
 - ★ 1 Year Factory Warranty
- PART NO. 085510 - IBM
085520 - Standard

THE UNIVERSAL JOYSTICK



\$22.95

- ★ Works with Apple II/II+ /Ile and IBM
 - ★ Two Pairs of Buttons to Accomodate Left or Right Handed Users
 - ★ Free Floating or Self Centering Operation
- PART NO. 084940

IIE NUMERIC KEYPAD

\$99.95



A High Quality Product From Japan

HIGH QUALITY JOYSTICK



\$16.95

- ★ Self Centering
- ★ Fine Tuning

PART NO.
084930 - Apple II/II+
084931 - Apple II/Ic
084932 - IBM

PEACE OF MIND

Would you trust your IBM/PC with a power supply manufactured by a shoe-string operation in Taiwan?

Our power supply is designed and manufactured by a group of local engineers dedicated to bring you quality products.

- ★ 100% Burnt-in and Tested
 - ★ Tested for 150-watt Specification, not 135-watt
 - ★ All Components Used are Specially Designed for Switchers
 - ★ 1 Year Parts and Labor Warranty
- PART NO. 085245

\$169.00



IBM COMPATIBLE PRODUCTS

64K XT Compatible Basic System.....	\$750.00
256K XT Compatible with 2 Full Size Disk Drives, Monochrome Graphics Card and Taxan Monochrome Green/Amber Monitor.....	\$1,390.00
256K XT Compatible with 2 Full Size Disk Drives, Color Graphics Card and Hi-res RGB 14" Color Monitor.....	\$1,490.00
64K XT Compatible Motherboard with BIOS.....	\$335.00
IBM Look-a-Like Metal Case.....	\$81.00
Detachable Keyboard with Large Return Key.....	\$115.00
Color Graphics Card.....	\$139.00
Hercules Color Card w/printer port.....	\$170.00
Monochrome Graphics Card w/printer port.....	\$195.00
0-384K Multifunction Card (OK).....	\$175.00
Parallel Printer Card.....	\$45.00
Serial I/O Card.....	\$60.00
Disk Controller.....	\$89.00
Teac FD-55B Slim Line Drive.....	\$115.00
Shugart SA-455 Slim Line Drive.....	\$105.00
MPI Full Size Drive.....	\$125.00
6ft Printer Cable.....	\$14.95
6ft Keyboard Extension Cable.....	\$6.50

APPLE COMPATIBLE PRODUCTS

64K Apple II+ Compatible Computer w/Numeric Keypad.....	\$360.00
5A Switching Power Supply.....	\$55.00
Apple Look-a-Like Case w/Keyboard and Numeric Keypad.....	\$115.00
80-Column Card with Softswitch & Inverse.....	\$79.00
Z-80 CP/M Card (Softcard Compatible).....	\$49.95
Parallel Graphics Printer Card with Cable.....	\$59.00
RS-232 Serial Card.....	\$49.00
Super Serial Card.....	\$79.00
16K RAM Card.....	\$39.00
Disk Controller.....	\$39.00
128K RAM Card.....	\$125.00
TTL I.C. Tester & Identifier.....	\$125.00
5 1/4" Slim Line Drive.....	\$139.00
Azuka Slim Line Drive.....	\$169.00

BETTER PRODUCTS, INC.

765 So. State College Blvd., Ste-E
Fullerton, CA 92631
Tel: (714) 526-7923

Availability and prices subject to change without notice. Please add 5% of total purchase or \$2.00 min., whichever is higher, as shipping and Ins. California resident, please add 6% sales tax.

EASTCOAST SOFTWARE

ecs...inflation-fighting prices.

No hidden charges! No credit card fees!

1-800-233-3237

APPLE SOFTWARE

CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE
1111	50 MISSION CRUSH	SSI	39.95	25.60	2935	BASIC SUBROUTINES W/DISK	ADDISON WESLEY	29.95	21.90	2937	COLORS AND SHAPES-CC PAK	HARTLEY	99.95	76.90
3298	A DAY TO FIND OUT	ORANGE CHERRY	67.00	51.55	3581	BATTLE UP!	AVANT GARDE	39.95	27.05	3170	COMPARISON KITCHEN	DLM	29.95	19.20
474	A-PLUG STRUCTURED BASIC	SENSIBLE	39.95	27.05	277	BATTLE FOR NORMANDY	SSI	39.95	25.65	45	COMPLETE GRAPHIC SYS (NEW)	PENGUIN	79.95	51.25
1441	A.L.D.S. (Z-80)	MICROSOFT	125.00	84.65	1839	BE YOUR OWN COACH-RUNNING	AVANT GARDE	49.95	35.25	654	COMPU-READ	EDUWARE	29.95	18.60
3559	A.V.CATALOG WRITER	FOLLETT	89.95	57.67	2144	BEACH LANDING	XEROX	39.95	25.60	2894	COMPUTER AMBUSH	SSI	59.95	38.45
494	ACCOUNTS PAYABLE 2E/2C	MANZANITA	295.00	226.95	278	BEAGLE BAG	BEAGLE BROS	29.50	18.95	1211	COMPUTER BASEBALL	SSI	39.95	25.65
2507	ACCOUNTS RECEIVABLE 2E/2C	MANZANITA	295.00	226.95	1192	BEAGLE GRAPHICS	BEAGLE BROS	34.95	22.45	2364	COMPUTER BISMARCK	SSI	59.95	38.45
3275	ACTIVE READER-WORLD NATURE	ORANGE CHERRY	67.00	51.55	2471	BEAST WAR	BEAGLE	59.95	38.45	2044	COMPUTER CONCEPTS-SCHOOL	CONTROL DATA	295.00	215.85
2438	ADDITION LOGICIAN-SCHOOL	MECC	43.00	29.10	3560	BEGINNING ALGEBRA	AVOLON HILL	24.95	18.25	2042	COMPUTER LITERACY-HOME	CONTROL DATA	39.95	29.25
2302	ADDITION MAGICIAN	LEARNING CO	34.95	22.40	208	BEGINNING MATH CONCEPTS	PDI	99.95	71.60	1866	COMPUTER PREP FOR ACT	HARCOURT	89.95	57.70
581	ADDITIONAL TYPE SETS	PENGUIN	19.95	12.70	398	BELOW THE ROOT	ORANGE CHERRY	67.00	51.55	1429	COMPUTER PREP FOR GRE	HARCOURT BRACE	89.95	57.70
786	ADJECTIVES	HARTLEY	39.95	30.75	1136	BEYOND CASTLE WOLFENSTEIN	WINDHAM	26.95	17.30	2892	COMPUTER QUARTERBACK	SSI	39.95	25.65
2226	ADJECTIVES-CC PAK	HARTLEY	79.95	61.50	3557	BIBLIOGRAPHY WRITER	MUSE	34.95	22.45	1138	COMPUTER SAT (HARCOURT)	H.B.J.	79.95	51.25
1479	ADVANCED V-CALC 2E EXPANDER	APPLIED ENG	29.00	19.25	497	BINARY MATH	FOLLETT	69.95	44.85	3164	COMPUTERS IN TEACHING	MECC	30.00	20.30
2413	ADVENT WRITER W/GRAPHICS	CODEWRITER	50.00	28.85	1728	BINARY MATH-CC PAK	HARTLEY	49.95	38.45	2496	CONGO BONGO	SEGA	44.95	33.90
3300	ADVENTURE AROUND WORLD	ORANGE CHERRY	67.00	51.55	791	BIOLOGY FACTS	HARTLEY	89.95	69.20	1309	CONNECTIONS	KRELL	99.95	96.10
2495	ADVENTURE CONST.SET	ELECT ARTS	59.95	36.15	3174	BIOLOGY-CELL GROWTH (128K)	AEC	19.95	12.70	3181	CONSTITUTIONAL AMENDMENTS	THOROUGHRED	49.95	38.45
2103	ADVENTURE DOUBLE FEATURE	SCHOLASTIC	19.95	16.90	3173	BIOLOGY-PHOTOSYNTH (128K)	THOROUGHRED	49.95	38.45	2066	CONTEXT CLUES-BLUE	LEARNING WELL	49.95	32.00
2429	ADVENTURE FRACTION-SCHOOL	MECC	45.00	30.45	3172	BIOLOGY-THE LEAF (128K)	THOROUGHRED	49.95	38.45	2065	CONTEXT CLUES-RED	LEARNING WELL	49.95	32.00
1172	ADVENTURES IN FLESH	KRELL	49.95	44.85	1285	BLACK DEATH	THOROUGHRED	49.95	38.45	1731	COPY 2 PLUS 5.5	CENTRAL POINT	39.95	20.50
787	ADVERBS	HARTLEY	39.95	30.75	3211	BLAZING BASIC TRAIL-SCHOOL	KRELL	24.95	23.98	543	COSMIC BALANCE II	SSI	55.00	42.35
2209	ADVERBS-CC PAK	HARTLEY	79.95	61.50	3565	BLAZING PADDLES	SUNBURST	55.00	42.35	3218	COUNTERS (SCHOOL)	SUNBURST	29.95	19.25
700	ADVERTISING TECHNIQUES	MICRO POWER LT	29.95	21.95	2058	BODY AWARENESS	BAUDVILLE	49.95	32.00	1489	COUNTING BEE	SPINNAKER	29.95	19.20
1349	AE	BRODERBUND	34.95	22.45	530	BOMB ALLEY	LEARNING WELL	49.95	32.00	1110	COUNTING PARADE	EDUWARE	29.95	19.25
2104	AGENT USA	SCHOLASTIC	39.95	25.65	3115	BOOKENDS (PRO DOS)	SSI	59.95	38.45	749	COVETED MIRROR	PENGUIN	34.95	22.45
3589	AGENT USA-SCHOOL	SCHOLASTIC	49.95	36.65	488	BOP-A-BET	SENSIBLE	149.95	96.15	224	CREATE - INTERMEDIATE	HARTLEY	29.95	23.05
1524	AIR POLLUTION	EME	37.00	27.00	3166	BOPPIE'S GREAT WORD CHASE	SIERRA ON-LINE	27.95	17.95	1826	CREATE - INTERMEDIATE-CC	HARTLEY	69.95	53.80
2490	ALCAZAR	ACTIVISION	39.95	27.05	2580	BOSTON COMPUTER DIET	DLM	29.95	19.25	1843	CREATE-FILL-IN-BLANK(CC)	HARTLEY	69.95	53.80
2187	ALGEBLAZER	DAVIDSON	49.95	32.05	1257	BOTTICELLI	SCARBOROUGH	79.95	51.25	1844	CREATE-FILL-IN-BLANKS	HARTLEY	69.95	53.80
560	ALGEBRA 1	EDUWARE	39.95	25.60	1537	BOULDER DASH	KRELL	34.95	32.75	1803	CREATE-LESSONS	HARTLEY	29.95	23.05
483	ALGEBRA 2	EDUWARE	39.95	25.60	690	BPI ACCOUNTS PAYABLE	MICROFUN	40.00	27.25	1781	CREATE-LESSONS-CC PAK	HARTLEY	29.95	23.05
484	ALGEBRA 3	EDUWARE	39.95	25.60	1378	BPI ACCOUNTS PAYABLE-I/E	BPI	395.00	253.25	2980	CREATE-MEDALISTS	HARTLEY	69.95	53.80
1458	ALGEBRA 4	EDUWARE	39.95	25.60	1376	BPI ACCOUNTS RECEIVABLE-I/E	BPI	395.00	253.25	2979	CREATE-SPELL IT	HARTLEY	39.95	30.75
723	ALGEBRA 5 & 6 (2-DISK)	EDUWARE	49.95	32.00	2176	BPI ACCTS PAY.(PRO DOS)	BPI	425.00	287.70	1779	CREATE-SPELL IT-CC PAK	HARTLEY	29.95	23.05
1422	ALGEBRA TUTOR 1 (7-ADULT)	EDUWARE	49.95	32.00	2174	BPI ACCTS REC.(PRO DOS)	BPI	425.00	287.70	2978	CREATE-VOCABULARY	HARTLEY	69.95	53.80
2220	ALIEN ACTION	LEARNING WELL	39.95	25.60	2961	BPI ACCTS RECEIVABLE	BPI	395.00	253.25	1756	CREATE-VOCABULARY-CC PAK	HARTLEY	69.95	53.80
1142	ALIEN ADDITION	DEVEL LEARNING	44.00	29.80	2839	BPI CHURCH MANAGEMENT	BPI	495.00	317.35	1295	CREATURE CREATOR	DESIGNWARE	29.95	19.25
3047	ALIEN ADDITION-SCHOOL	DLM	44.00	28.20	2177	BPI GEN.ACCTG (PRO DOS)	BPI	425.00	287.70	645	CRICKET IN TIMES SQUARE	SUNBURST	25.00	19.25
3276	ALL ABOUT DINOSAURS	ORANGE CHERRY	34.00	26.15	1375	BPI GENERAL ACCOUNTING I/E	BPI	395.00	253.25	2097	CROSSWORD MAGIC	L&S	49.95	32.05
1852	ALLEGORY OF PLATO'S CAVE	KRELL	49.95	38.45	1676	BPI GENERAL LEDGER	BPI	395.00	253.25	1071	CROSSWORD MAGIC (SCHOOL)	MINDSCAPE	49.95	33.80
2721	ALLIGATOR ALLEY-SCHOOL	DLM	44.00	28.25	1321	BPI INVENTORY (PRO DOS)	BPI	395.00	253.25	2245	CRUSADE IN EUROPE	MICROPROSE	39.95	25.60
2823	ALLIGATOR MIX	DEVEL LEARNING	34.00	21.80	2830	BPI INVENTORY CONTROL	BPI	425.00	287.70	811	CRYPT OF MEDEA	SIR-TECH	34.95	22.45
3048	ALLIGATOR MIX-SCHOOL	DLM	44.00	28.20	2884	BPI PAYROLL	BPI	395.00	253.25	2680	CRYPTO CUBE	DESIGNWARE	39.95	25.60
2172	ALPHA BUILD	FISHER PRICE	21.95	14.85	1825	BPI PAYROLL-PRODOS	BPI	395.00	253.25	2910	CUT & PASTE (2E/2C)	ELECTRONIC ARTS	50.00	35.65
13	ALPHA PLOT	BEAGLE BROS	39.50	25.35	1379	BPI PAYROLL-I/E	BPI	425.00	287.70	1655	CUTTHROATS	INFOCOM	39.95	27.05
205	ALPHABEE	ORANGE CHERRY	30.00	23.10	2856	BPI SPEED READING	BPI	395.00	253.25	33	CYTRON MASTERS	SSI	19.98	12.85
3556	ALPHABET ARCADE	PDI	24.95	17.80	2964	BPI TIME ACCOUNTING	BPI	99.00	63.40	1900	D-CODE	BEAGLE	39.95	25.65
1187	ALPHABET CIRCUS	DLM	29.95	20.30	3475	BRAIN GAME	BPI	395.00	253.25	1118	DALLAS QUEST	DATASOFT	34.95	22.45
1625	ALPHABET SOUNDS (4 PARTS)	ORANGE CHERRY	82.00	63.10	2469	BRIDGE 4.0	MILLENNIUM	39.95	27.00	1680	DARK CRYSTAL	SIERRA ON-LINE	37.95	24.35
2542	ALPHABETIC KEYBOARDING	SPINNAKER	29.95	20.30	1255	BRIDGE TO TERABITHIA	ARTWORKS	24.95	16.90	644	DARK IS RISING	SUNBURST	25.00	19.25
417	ALPINE ENCOUNTER	SOUTHWESTERN	89.50	57.40	2599	BROADSIDES	SUNBURST	25.00	19.25	2430	DATA CAPTURE 2E	SUNBURST	90.00	64.55
1485	AMAZON	CBS	39.95	25.60	2651	BROWN BAG	SSI	39.95	25.65	2589	DATA CAPTURE 5.0	SOUTHEASTERN	90.00	64.55
2277	ANALOGIES	TRILLIUM	39.95	25.60	936	BROWN LEE	SCREENPLAY	49.95	33.80	3128	DATA HANDLER (SCHOOL)	MECC	49.00	33.20
789	ANALOGIES ADVANCED	MICRO POWER LT	34.95	23.65	2194	BUCE A BOOK	DATASOFT	39.95	25.65	2155	DATABASE TOOLBOX	ROGER WAGNER	39.95	25.60
2207	ANALOGIES ADVANCED-CC PAK	HARTLEY	49.95	38.45	1838	BUILDING TENS STRATEGY	SCARBOROUGH	39.95	25.60	1645	DAZZLE DRAW-2C/2E (128K)	BRODERBUND	39.95	25.60
788	ANALOGIES TUTORIAL	HARTLEY	79.95	61.50	1727	BUILDING TENS STRATEGY-CC	HARTLEY	39.95	25.60	623	DB MASTER (CORVUS)	STONWARE	395.00	253.25
2206	ANALOGIES TUTORIAL-CC PAK	HARTLEY	49.95	38.45	448	BUMBLE GAMES	HARTLEY	89.95	69.20	385	DB MASTER BUS WRITER 2E/2C	STONWARE	149.00	95.55
3138	ANIMAL PHOTO FUN	HARTLEY	89.95	69.20	1416	BUMBLE GAMES-SCHOOL	LEARNING CO.	39.95	25.60	1265	DB MASTER PLUS	STONWARE	295.00	189.10
2200	ANTONIMS/SYNONYMS-CC PAK	DLM	29.95	19.20	571	BUMBLE PLOT	ADDISON-WESLEY	54.95	35.20	34	DB MASTER STAT PAK	STONWARE	99.00	63.40
783	ANTONYMS/SYNONYMS	HARTLEY	79.95	61.50	596	BUMBLE PLOT-SCHOOL	LEARNING CO.	39.95	25.60	35	DB MASTER UTIL PAK 1	STONWARE	99.00	63.40
1021	APPLE 2E TECH.REF MANUAL	ADDISON WESLEY	39.95	30.75	2418	BUSINESS EDUC VOL 3-SCHOOL	ADDISON-WESLEY	54.95	35.20	36	DB MASTER UTIL PAK 2	STONWARE	99.00	63.40
1831	APPLE A DAY	AVANT GARDE	19.95	13.50	2926	CALENDAR SKILLS	MECC	49.00	33.20	52	DEADLINE	INFOCOM	49.95	32.05
151	APPLE MECHANIC	BEAGLE BROS	49.95	35.25	1723	CALENDAR SKILLS-CC PAK	HARTLEY	29.95	23.05	189	DECATHALON	MICROSOFT	29.95	20.30
2703	APPLE THESAURUS	DATAMOST	29.95	17.60	724	CALL IT COURAGE	HARTLEY	69.95	53.80	2080	DECIMAL SKILLS	MILTON BRADLEY	49.95	32.00
2604	APPLE USERS GUIDE 2C	OSBORNE	17.95	12.80	1298	CAMPAIGN MATH	SUNBURST	25.00	19.25	3177	DECIMALS MADE SIMPLE(128K)	EDUWARE	39.95	25.60
2514	APPLESOF TOOLBOX W/DISK	ADDISON WESLEY	29.95	23.20	790	CAPITALIZATION	MINDPLAY	39.95	27.10	3570	DECIMALS-GALAXY VOL.3	THOROUGHRED	49.95	38.45
3111	APPLEWORKS MODIFIER	VIDEX	49.00	33.30	2127	CAPITALIZATION-CC PAK	HARTLEY	49.95	38.45	30	DECIMALS-HOME	RANDOM HOUSE	29.95	19.20
702	APPLEWORKS SUPER EXPANDER	APPLIED ENG	39.00	25.65	2506	CAPTAIN GOODNIGHT	HARTLEY	89.95	69.20	630	DELTA DRAWING	CONTROL DATA	39.95	29.25
309	APPLEWRITER 2 PRE-BOOT	VIDEX	24.00	15.85	815	CARRIER FORCE	BRODERBUND	34.95	22.40	1143	DEMOLITION DIVISION	DEVEL LEARNING	34.00	21.80
1435	ARCADE ALBUM-THUNDERBOLTS	PENGUIN	29.95	19.25	2619	CARRIERS AT WAR	SSI	59.95	38.45	3049	DEMOLITION DIVISION-SCHOOL	DLM	44.00	29.35
1122	ARCADE BOOTCAMP	PENGUIN	29.95	19.25	1236	CARTELS & CUTTHROATS	ELECT ARTS	50.00	36.95	1171	DESCARTES' DELIGHT	KRELL	79.95	71.15
2904	ARCHON	ELECTRONIC ARTS	40.00	28.50	228	CASTLE WOLFENSTEIN	SSI	39.95	25.65	2941	DIG DUG	DATASOFT	29.95	19.25
2446	ARCHON 2	ELECT.ARTS	39.95	29.20	2375	CAT 'N MOUSE	MUSE	29.95	19.25	426	DINOSAUR DIG	CBS SOFTWARE	39.95	25.65
717	ARITH.CLASS.-ADDITION	STERL.SWIFT	49.95	36.55	459	CAT GRAPHICS	MINDPLAY	39.95	25.65	2308	DINOSAURS	ADVANCED IDEAS	39.95	25.60
681	ARITH.CLASS.-DIVISION	STERL.SWIFT	49.95	36.55	113	CATALOG CARD/LABEL (2 + 1/2E)	PENGUIN	34.95	22.45	3201	DISCOVER-SCHOOL	SUNBURST	55.00	42.35
701	ARITH.CLASS.-MULTIPLY	STERL.SWIFT	49.95	36.55	322	CATALOG CARD/LABEL (2C)	K-12	199.00	145.65	2415	DISCOVERY LAB-SCHOOL	MECC	44.00	29.80
711	ARITH.CLASS.-SUBTRACTION	STERL.SWIFT	49.95	36.55	1222	CATALYST I/E	K-12	169.00	123.60	3196	DISCRIM/ATTRIB-PKG A	SUNBURST	150.00	115.40
1930	ARROW DYNAMICS (TEACHERS)	SUNBURST	55.00	42.30	2074	CAUSE & EFFECT-BLUE	QUARK	149.00	114.65	3197	DISCRIM/ATTRIB-PKG B	SUNBURST	175.00	134.65
595	ASCII EXPRESS (DOS 3.3)	UNITED SOFTWARE	129.95	83.30	2073	CAUSE & EFFECT-RED	LEARNING WELL	49.95	32.00	3198	DISCRIM/ATTRIB-PKG C	SUNBURST	225.00	173.10
1805	ASCII EXPRESS (PRODOS)	UNITED	129.95	83.30	2125	CAUSE AND EFFECT	LEARNING WELL	49.95	32.00	1113	DISK ARRANGER	PENGUIN	29.95	19.20
2269	AUTODUEL	ELECT ARTS	49.95	38.45	2124	CAUSE AND EFFECT-CC PAK	HARTLEY							

EAST COAST SOFTWARE (Continued)

1-800-233-3237

CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE
620	ELEMENTARY MATH	MUSE	39.95	25.65	1954	GERTRUDE'S PUZZLES-SCHOOL	ADDISON-WESLEY	59.95	38.40	3462	LIBRARY ADVENTURE (BLUE)	LEARNING WELL	49.95	32.00
2794	ENCHANTER	INFOCOM	39.95	25.65	572	GERTRUDE'S SECRETS	LEARNING CO.	44.95	28.80	3463	LIBRARY ADVENTURE (RED)	LEARNING WELL	49.95	32.00
384	ENGLISH SAT #1	MICRO LAB	35.00	23.70	1970	GERTRUDE'S SECRETS-SCHOOL	ADDISON-WESLEY	59.95	38.40	1692	LIBRARY CIRCULATION MGR	K-12	240.00	175.65
399	ENGLISH SAT #2	MICRO LAB	30.00	21.55	1604	GET READY READ/ADD-HOME	SUNBURST	44.95	31.70	2591	LIBRARY-HOW FIND IT	SUNBURST	55.00	42.30
531	EPIDEMIC	SSI	34.95	22.45	3206	GET TO THE POINT-SCHOOL	SUNBURST	55.00	42.35	2032	LIFE COPING SKILLS-SCHOOL	CONTROL DATA	295.00	215.85
29	ESSENTIAL DATA DUPLICATOR	UTILICO	79.95	49.95	2587	GETTING READY READ-TEACHER	SUNBURST	55.00	42.30	713	LIFE SAVER	MICROLAB	25.00	16.95
3234	EUROPE ABLAZE	ELECT ARTS	49.95	38.45	2055	GETTING THE MAIN IDEA-BLUE	LEARNING WELL	49.95	32.00	3486	LIGHT LAB	HAYDEN	49.95	32.05
618	EVELYN WOOD DYNAMIC READER	TIMEWORKS	69.96	44.85	2054	GETTING THE MAIN IDEA-RED	LEARNING WELL	49.95	32.00	291	LIGHT WAVES	EME	55.00	40.25
1025	EVELYN WOOD READER-SCHOOL	TIMEWORKS	332.25	224.90	2213	GHOST BUSTERS	ACTIVISION	39.95	27.05	403	LISA 2.6	LAZER	79.95	61.55
1715	EXPANDED NOTATION	HARTLEY	29.95	23.05	2843	GLOBAL PLE/BEAGLE BROS	BEAGLE BROS	49.95	32.05	1359	LISA 2.6 EDUCATIONAL PACK	LAZERWARE	125.00	96.15
1699	EXPANDED NOTATION-CC PAK	HARTLEY	69.95	53.80	801	GO TO THE HEAD OF CLASS	MILTON BRADLEY	39.95	25.65	310	LIST HANDLER	ADVANCED LOGIC	79.95	51.25
847	EXPEDITION AMAZON	PENGUIN	34.95	22.40	3232	GOLDEN OLDIES	ELECT ARTS	34.95	26.95	2237	LOCKSMITH (IBM,PC)	ALPHA LOGIC	80.00	62.80
2967	EXPERIENCING PROCEDURES	MECC	36.00	24.40	1667	GOOFY'S WORD FACTORY	SIERRA ON-LINE	39.95	25.65	806	LOCKSMITH 5.0	ALPHA LOGIC	99.95	65.85
2299	EXPLORE APPLE LOGO-SCHOOL	SUNBURST	79.95	61.50	3294	GOVERNMENT IN THE U.S.	ORANGE CHERRY	67.00	51.55	982	LODE RUNNER	ALPHA LOGIC	39.95	25.65
3212	EXPLORING KRELL LOGO	SUNBURST	49.00	37.70	2409	GRADE MANAGER-SCHOOL	MECC	46.00	31.15	1499	LODE RUNNER-CHAMPIONSHIP	BRODERBUND	34.95	22.45
2106	EXPLORING METROS	SUNBURST	55.00	42.30	1530	GRAMMAR EXAMINER	DESIGNWARE	44.95	28.80	2108	LOGIC BUILDERS	SCHOLASTIC	39.95	27.05
2132	EXPLORING TABLES/GRAPHS-1	XEROX	34.95	22.40	1100	GRANDMA'S HOUSE	SPINNAKER	24.95	16.00	2896	LOGIC BUILDERS-SCHOOL	SCHOLASTIC	49.95	36.65
2131	EXPLORING TABLES/GRAPHS-2	XEROX	34.95	23.65	548	GRAPHIC SOLUTION	ACCENT	149.95	107.55	2109	LOGO DESIGN MASTER	KOALA	39.95	25.60
2590	EXPLORING TERR. LOGO-SCHOOL	SUNBURST	49.00	37.70	2963	GRAPHICS DEPARTMENT	SENSIBLE	124.95	80.10	1020	LUCKY'S EARLY SKILLS	SCHOLASTIC	24.95	16.00
2238	EXTRA K	BEAGLE BROS	39.95	25.65	43	GRAPHICS MAGICIAN	PENGUIN	59.95	38.45	2483	LUCKY'S FOREIGN LANG'S	ADV IDEAS	19.95	12.80
804	EXTRA! EXTRA!	MILTON BRADLEY	39.95	25.65	2287	GRAPHING LOGIC EQUATIONS	MECC	46.00	31.15	556	LUCKY'S LANGUAGE SKILLS	ADV IDEAS	19.95	12.80
732	F15 STRIKE EAGLE	MICROPROSE	34.95	22.45	872	GRAPHWORKS	PBI SOFTWARE	79.95	66.70	2714	LUCKY'S MAGIC HAT	ADV IDEAS	39.95	25.60
280	FACE MAKER	SPINNAKER	24.95	16.00	3279	GREAT AMER.FOLK HEROES	ORANGE CHERRY	67.00	51.55	2715	LUCKY'S PREP FOR SAT	ADV IDEAS	19.95	12.80
2123	FACT OR OPINION	HARTLEY	39.95	30.75	2113	GREAT GILLY HOPKINS	SUNBURST	25.00	19.25	285	LUNAR LEAPER	SIERRA ON-LINE	29.95	21.40
2082	FACT OR OPINION-BLUE	LEARNING WELL	49.95	32.00	338	GREAT MAINE TO CALIF RACE	HAYDEN	39.95	27.05	1580	MAGIC CASH REGISTER	AVANT GARDE	34.95	24.65
2122	FACT OR OPINION-CC PAK	HARTLEY	79.95	61.50	3482	GREAT NUMBER CHASE	MILLIKEN	45.00	30.50	2072	MAGIC CASTLE (VOCAB)-BLUE	LEARNING WELL	49.95	32.05
2081	FACT OR OPINION-RED	LEARNING WELL	49.95	32.00	2901	GROWING'S FRACTIONS	MECC	45.00	30.50	2071	MAGIC CASTLE (VOCAB)-RED	LEARNING WELL	49.95	32.05
496	FACT SHEETS	HARTLEY	49.95	38.45	408	GUADALCANAL	SSI	59.95	38.45	849	MAGIC OFFICE SYSTEM 2E/2C	ARTSCI	295.00	191.05
3441	FACTOR BLAST	HAYDEN	29.95	19.20	3483	GULP/FRENZY	MILLIKEN	34.95	25.50	3112	MAGIC PAINT BRUSH	PENGUIN	34.95	23.65
1871	FACTORING	MICRO POWER LT	34.95	23.75	2878	GUMBALL	BRODERBUND	29.95	19.25	1804	MAGIC SLATE (TEACHERS)	SUNBURST	65.00	50.00
1834	FACTS AND FALLACIES	HARTLEY	39.95	30.75	2162	HALLEY PROJECT	MINDSCAPE	44.95	28.85	1456	MAGIC SPELLS	LEARNING CO	34.95	22.40
1113	FAHRENHEIT 451	TRILLIUM	39.95	25.60	1061	HALLEY PROJECT (SCHOOL)	MINDSCAPE	49.95	33.80	2239	MAGIC SPELLS-SCHOOL	ADDISON-WESLEY	49.95	32.00
3281	FAIRY TALES/PRIMARY GRADES	ORANGE CHERRY	34.00	26.15	1701	HANDS ON BASIC PROGRAMING	EDUWARE	49.00	31.40	492	MAGIC WINDOW 2+	ARTSCI	149.95	101.50
1064	FAMILY ROOTS	QUINSEPT	185.00	155.15	2902	HARD HAT MACK	ELECTRONIC ARTS	35.00	24.95	3094	MAGIC WINDOW 2E/2C	ARTSCI	149.95	96.15
1792	FAMOUS SCIENTISTS	HARTLEY	39.95	30.75	562	HAYES SMARTCOM 1	HAYES	45.00	30.50	1397	MAGICALC	ARTSCI	149.95	101.30
1182	FAT CAT	BEAGLE BROS	34.95	22.45	2886	HEALTH MAINT.-VOL.1	MECC	45.00	30.50	3095	MAGICALC (PRO DOS)	ARTSCI	149.95	101.30
2611	FAT CITY	XEROX	39.95	25.60	2885	HEALTH MAINT.-VOL.2	MECC	45.00	30.50	1248	MAKE A MATCH	SPRINGBOARD	29.95	19.25
1164	FELONY	CBS	34.95	23.65	1591	HEY DIDDLE DIDDLE	SPINNAKER	24.95	16.00	3238	MAKE IT CLICK-SCHOOL	SUNBURST	55.00	42.35
1671	FIGHTER COMMAND	SSI	59.95	38.45	803	HEY TAXI	MILTON BRADLEY	39.95	25.65	2279	MANAGEMENT EDGE	HUMAN EDGE	250.00	160.20
225	FIGURATIVE LANGUAGE	HARTLEY	49.95	38.45	1346	HITCHHIKERS GUIDE GALAXY	INFOCOM	39.95	25.65	3210	MANAGING LIFESTYLES-SCHOOL	SUNBURST	55.00	42.35
2043	FIGURATIVE LANGUAGE-CC PAK	HARTLEY	89.95	69.20	1016	HOLY GRAIL	HAYDEN	49.95	33.80	1924	MANAGING YOUR MONEY	MECA	199.95	134.95
1126	FIGURES AND FORMULAS	SCARBOROUGH	29.95	19.25	197	HOME ACCOUNTANT	CONTINENTAL	74.95	44.85	317	MANAGING-PERSONAL DEVELOP.	CBS SOFTWARE	79.95	51.20
2525	FILE & REPORT	SPINNAKER	59.95	40.60	1364	HOME ACCOUNTANT 2C/E-128K	CONTINENTAL	74.95	44.85	1169	MAP PACK	PENGUIN	19.95	12.70
2938	FILES ON THE APPLE	MECC	46.00	31.15	3417	HOME ENERGY CONSERVATION	EME	55.00	40.25	670	MASK PARADE	SPRINGBOARD	39.95	25.60
1438	FILEWRITER	CODEWRITER	39.95	30.75	1423	HOME PAK	BATTERIES INC	49.95	32.05	446	MASTER MATCH	ADVANCED IDEAS	39.95	25.65
371	FINANCIAL COOKBOOK	ELECTRONIC ARTS	50.00	35.65	2804	HOMEWORD	SIERRA ON-LINE	69.95	44.85	6	MASTER MATCH-FOREIGN LANG	ADVANCED IDEAS	19.95	12.80
677	FINANCIAL STATEMENT	MICROSOFT	100.00	71.75	1245	HOMEWORD FILER 2E/C 128K	SIERRA ON-LINE	69.95	44.85	598	MASTER MATCH-SCHOOL	DLM	44.00	28.20
24	FIRE FIGHTER BASIC ACCTING	PRACTICAL SOFT	89.00	55.80	1246	HOMEWORD SPELLER	SIERRA ON-LINE	49.95	32.05	215	MASTER MATCH-SCI & MATH	ADVANCED IDEAS	19.95	12.70
3380	FISH SCALES	DLM	29.95	19.20	3563	HOMEWORK HELP-MATH	SPINNAKER	39.95	27.05	450	MASTER MATCH/MATH & SOC.ST	ADVANCED IDEAS	19.95	12.70
3580	FIX IT	RANDOM HOUSE	39.95	25.65	1030	HOMEWORK HELP-WORD PRBLMS	SPINNAKER	39.95	25.65	2873	MASTER SPELL (SCHOOL)	MECC	43.00	29.10
850	FLASHCALC (PRO DOS)	VISICORP	99.00	63.50	3566	HOMEWORK HELP-WRITING	SPINNAKER	39.95	25.65	192	MASTER TYPE	SCARBOROUGH	39.95	25.65
553	FLEX TYPE (FLEX TEXT)	BEAGLE BROS	29.95	18.95	782	HOMONYMS	HARTLEY	39.95	30.75	2985	MASTER TYPE FILER	SCARBOROUGH	39.95	25.60
2821	FLIGHT SIMULATOR II	SUBLOGIC	49.95	35.25	2031	HOMONYMS-CC PAK	HARTLEY	79.95	61.50	3179	MASTER UNITS MEASUREMENT	THOROUGHREDD	49.95	38.45
2057	FOLLOWING DIRECTIONS-BLUE	LEARNING WELL	49.95	32.00	1663	HOW TO PROGRAM IN BASIC	HAYDEN	29.95	20.30	2853	MASTERING COL. BOARDS (ENG)	CBS	175.00	112.20
2056	FOLLOWING DIRECTIONS-RED	LEARNING WELL	49.95	32.00	1901	I.O. SILVER	BEAGLE	29.95	19.25	59	MASTERING THE GRE	CBS	150.00	96.15
2797	FONTPAK 1	DATA TRANSFORMS	25.00	16.05	1959	ICAN STRESS MGMT	MICRO POWER LT.	29.95	21.95	604	MASTERING THE SAT	CBS	99.95	64.00
2960	FONTPAK 10	DATA TRANSFORMS	25.00	16.05	1632	IDEA INVASION-SCHOOL	DLM	44.00	28.20	1833	MATCH ESPANOL	HARTLEY	35.95	27.65
2958	FONTPAK 11	DATA TRANSFORMS	25.00	16.05	3283	IDENTITY 500	ORANGE CHERRY	30.00	23.10	1832	MATCH FRANCAIS	HARTLEY	35.95	27.65
1583	FONTPAK 12	DATA TRANS	25.00	16.05	2294	IMPERIAL GALACTICUM	SSI	39.95	25.65	643	MATCH WITS	CBS	29.95	19.25
1579	FONTPAK 13	DATA TRANS	25.00	16.05	1589	IN SEARCH OF AMAZING THING	SPINNAKER	32.95	21.15	1997	MATCHMAKER-GRAMMAR SKILLS	A.E.C.	19.95	12.70
2798	FONTPAK 2	DATA TRANSFORMS	25.00	16.05	1603	INCREDIBLE LAB (HOME)	SUNBURST	44.95	31.70	738	MATCHMAKER-SPANISH VOCAB.	A.E.C.	19.95	12.70
540	FONTPAK 3	DATA TRANSFORMS	25.00	16.05	1177	INCREDIBLE LAB (TEACHERS)	SUNBURST	55.00	42.30	631	MATCHMAKER-U.S. GEOGRAPHY	A.E.C.	19.95	12.70
1226	FONTPAK 4	DATA TRANSFORMS	25.00	16.05	2078	INFERENCE-BLUE	LEARNING WELL	49.95	32.00	440	MATCHMAKER-VOCAB.BUILDER	A.E.C.	19.95	12.70
1227	FONTPAK 5	DATA TRANSFORMS	25.00	16.05	2077	INFERENCE-RED	LEARNING WELL	49.95	32.00	737	MATCHMAKER-WORLD GEOGRAPHY	A.E.C.	19.95	12.70
1810	FONTPAK 6	DATA TRANS	25.00	16.05	2831	INFIDEL	INFOCOM	44.95	28.85	245	MATH ARCADE GAMES	ORANGE CHERRY	50.00	38.45
1812	FONTPAK 7	DATA TRANS	25.00	16.05	1717	INFOCOM SAMPLER	INFOCOM	7.95	5.40	397	MATH BLASTER!	DAVIDSON	49.95	32.00
1256	FONTPAK 8	DATA TRANS	25.00	16.05	359	INSPECTOR	ALPHA LOGIC	59.95	50.20	1028	MATH BUSTERS	SPINNAKER	29.95	20.30
1254	FONTPAK 9	DATA TRANS	25.00	16.05	2977	INTEGERS - EQUATIONS 1 & 2	HARTLEY	39.95	30.75	2932	MATH CONCEPTS 1 & 2	HARTLEY	39.95	30.75
2796	FONTRIX 1.5	DATA TRANSFORMS	95.00	60.90	3569	INTEGERS-GALAXY VOL.4	RANDOM HOUSE	29.95	19.20	1696	MATH CONCEPTS 1 & 2-CC	HARTLEY	79.95	61.50
3214	FOR YOUR NEXT ADVENTURE	SUNBURST	55.00	42.35	1968	INTELLECTUAL PURSUITS	HARTLEY	39.95	30.75	3285	MATH FOR YOUNG CONSUMER	ORANGE CHERRY	67.00	51.55
9	FORECAST	MONOGRAM	59.95	38.40	3291	INTERMED.MATH SKILLS	ORANGE CHERRY	67.00	51.55	2370	MATH MAGIC	MINDPLAY	39.95	25.65
1085	FORECAST (WEATHER)	CBS	49.95	32.00	2182	INTRO TO ALGEBRA	AVANT GARDE	34.95	24.65	2118	MATH MAN	SCHOLASTIC	39.95	27.10
1427	FORMAT II ENHANCED	KENSINGTON	150.00	96.15	2877	INTRO TO APPLESOFT BASIC	MECC	46.00	31.15	2947	MATH MAN-SCHOOL	SCHOLASTIC	49.95	36.65
206	FORTAN 80 COMPILER	MICROSOFT	195.00	130.80	3295	INTRO TO GEOGRAPHY	ORANGE CHERRY	55.00	42.30	2862	MATH MAZE	DESIGNWARE	39.95	25.65
1381	FORTRESS	SSI	34.95	22.45	265	INVENTORY CONTROL 2E/2C	MANZANITA	295.00	226.95	2577	MATH RUN	AVANT GARDE	34.95	24.65
3479	FOURWORD/WORD LIFT	MILLIKEN	39.95	27.05	535	INVERTEBRATE BIOLOGY KEY	FOCUS	39.00	28.55	704	MATH SAT 1	MICROLAB	35.00	23.70
1249	FRACTION FACTORY	SUNBURST	29.95	19.20	1522	ISLAND OF BLUE DOLPHINS	SUNBURST	25.00	19.25	3466	MATH SERIES-ADDITION	MILLIKEN	34.95	23.65
298	FRACTION FEVER	SPINNAKER	24.95	16.00	2159	JAMES BOND VIEW TO A KILL	MINDSCAPE	39.95	25.65	3465	MATH SERIES-DIVISION	MILLIKEN	34.95	23.65
741	FRACTIONS 3.0	EDUWARE	39.95	25.60	172	JAWBREAKER (NEW VERSION)	SIERRA ON-LINE	29.95	21.40	3460	MATH SERIES-FRACTIONS	MILLIKEN	34.95	23.65
3573	FRACTIONS-GALAXY VOL.2	PBI	49.95	38.45	1911	JEEVES	PBI	49.95	38.45	3458	MATH SERIES-MULTIPLICATION	MILLIKEN	34.95	23.65
1436	FRACTIONS-HOME	RHIANON	34.95	22.40	142	JENNY OF THE PRAIRIE	RHIANON	34.95	22.40	3414	MATH SERIES-PERCENTS	MILLIKEN	34.95	23.65
554	FRAME-UP	MECC	29.95	20.30	3									

EAST COAST SOFTWARE (Continued)

1-800-233-3237

CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE
1548	MICRO COOK-FOOD PROCESS 2E	VIRTUAL COMBIN	16.95	12.75	246	OPPOSITES	HARTLEY	29.95	23.05	2098	READING COMPREHENSION	MILTON BRADLEY	49.95	32.00
1550	MICRO COOK-MICROWAVE 2+	VIRTUAL COMBIN	16.95	12.75	1956	OPPOSITES-CC PAK	HARTLEY	69.95	53.80	2076	READING FOR DETAIL-BLUE	LEARNING WELL	49.95	32.00
1552	MICRO COOK-MICROWAVE 2C	VIRTUAL COMBIN	16.95	12.75	1501	OSMOSIS AND DIFFUSION	EME	41.00	30.00	2075	READING FOR DETAIL-RED	LEARNING WELL	49.95	32.00
1551	MICRO COOK-MICROWAVE 2E	VIRTUAL COMBIN	16.95	12.75	3496	OVERDUE COLLECTOR	FOLLETT	49.95	32.05	188	READING KEYS (GR 2)	AVANT GARDE	49.95	35.25
1180	MICRO COOK-SOUPS/SALADS 2+	VIRTUAL COMBIN	12.95	8.30	3495	OVERDUE WRITER	FOLLETT	149.95	96.15	2734	READING READINESS 4-PARTS	ORANGE CHERRY	82.00	63.10
1543	MICRO COOK-SOUPS/SALADS 2C	VIRTUAL COMBIN	16.95	12.75	3494	OVERNIGHT WRITER	FOLLETT	49.95	32.05	1856	REFORGER '88	SSI	59.95	38.40
2146	MICRO COOK-SOUPS/SALADS-2E	VIRTUAL COMBIN	12.95	8.30	1890	P-TERM PRO	UNITED SOFTWARE	129.95	83.35	2533	REMEMBER	DESIGNWARE	79.95	54.15
1559	MICRO COOK-SPECIAL DIET 2+	VIRTUAL COMBIN	14.95	12.10	680	P.D.Q. BUILDER(TEST ADMIN)	MICRO POWER LT.	44.95	32.80	289	RENDEZVOUS	EDUWARE	39.95	25.60
1564	MICRO COOK-SPECIAL DIET 2C	VIRTUAL COMBIN	14.95	12.10	2951	PAC MAN	DATASOFT	29.95	19.25	1487	RENDEZVOUS WITH RAMA	TRILLIUM	39.95	25.60
1563	MICRO COOK-SPECIAL DIET 2E	VIRTUAL COMBIN	14.95	12.10	70	PAINLESS PUNCTUATION 4-PTS	ORANGE CHERRY	67.00	51.55	1451	REPORT CARD	SENSIBLE	59.95	38.45
1540	MICRO COOK-WOK 2+	VIRTUAL COMBIN	16.95	12.75	2717	PAINT WITH WORDS	MECC	29.95	20.30	1433	REPORTWRITER	CODEWRITER	39.95	30.75
1546	MICRO COOK-WOK 2C	VIRTUAL COMBIN	16.95	12.75	568	PAPER GRAPHICS	PENGUIN	49.95	32.05	636	REPRODUCTION ORGANS	MICRO POWER	29.95	21.95
1542	MICRO COOK-WOK 2E	VIRTUAL COMBIN	16.95	12.75	1747	PATH TACTICS	MECC	29.95	20.30	605	REPRODUCTION PROCESS	MICRO POWER	29.95	21.95
437	MICRO COOKBOOK	VIRTUAL COMBIN	40.00	25.65	3096	PATHWORDS	CBS	34.95	22.40	1945	RETURN OF WERDUNA (WIZ 4)	SIR-TECH	44.95	28.85
227	MICRO COOKBOOK /IC	VIRTUAL COMB	40.00	25.65	1525	PATTERN MAKER	SCARBOROUGH	39.95	27.00	2017	REVOLUTIONS	FOCUS	159.00	116.35
2148	MICRO COOKBOOK /E	VIRTUAL COMBIN	40.00	25.65	569	PATTERNS & SEQUENCE	HARTLEY	35.95	27.65	2400	RHYMELAND	GROLIER	29.95	19.20
313	MICRO SPEED READ	CBS SOFTWARE	99.95	64.00	2841	PATTERNS & SEQUENCE-CC PAK	HARTLEY	99.95	76.90	1450	RHYMES & RIDDLES	SPINNAKER	24.95	16.00
2540	MICRO-ORIENTED ACCOUNTING	SOUTHWESTERN	59.50	38.15	624	PAYROLL 2E/2C	MANZANITA	345.00	265.40	2554	RING QUEST	PENGUIN	34.95	22.40
2905	MICROLEAGUE BASEBALL	MICROLEAGUE	39.95	27.05	2707	PAYROLL SYSTEM-BUS.SIMUL.	MECC	48.00	32.50	583	RINGSIDE SEAT	SSI	39.95	25.65
2945	MICROZINE 1	SCHOLASTIC	39.95	27.05	1657	PEANUT'S MAZE MARATHON	RANDOM HOUSE	39.95	25.65	1301	ROBOMATH	MINIPLAY	39.99	27.10
415	MICROZINE 2	SCHOLASTIC WIZ	39.95	27.05	3594	PEANUTS MATH MATCHER	RANDOM HOUSE	39.95	25.65	1120	ROBOT ODYSSEY I	LEARNING CO	49.95	32.05
2676	MICROZINE 3	SCHOLASTIC	39.95	27.05	1418	PEANUTS PICTURE PUZZLERS	RANDOM HOUSE	39.95	25.60	178	ROBOT WAR	MUSE	39.95	25.65
2677	MICROZINE 4	SCHOLASTIC	39.95	27.05	4	PENSATE	PENGUIN	29.95	19.25	574	ROCKY'S BOOTS	LEARNING CO.	49.95	32.00
2678	MICROZINE 5	SCHOLASTIC	39.95	27.05	2095	PERCENTS	MILTON BRADLEY	49.95	32.00	1306	ROCKY'S BOOTS-SCHOOL	ADDISON-WESLEY	64.95	41.60
2679	MICROZINE 6	SCHOLASTIC	39.95	27.05	2381	PERFECT SCORE-SAT	MINDSCAPE	69.95	44.80	781	ROOTS/AFFIXES	HARTLEY	39.95	30.75
3110	MICROZINE 7	SCHOLASTIC	39.95	27.05	3124	PERFECT WRITER/SPELL/THES	THORN EMI	139.00	99.60	1949	ROOTS/AFFIXES-CC PAK	HARTLEY	79.95	61.50
2570	MICROZINE 8	SCHOLASTIC	39.95	27.05	1840	PERPLEXING PUZZLES	HARTLEY	39.95	30.75	600	ROUTINE MACHINE	SOUTHWESTERN	39.95	25.65
3487	MILLIKEN WORD PROCESSOR	MILLIKEN	69.95	47.35	1955	PERPLEXING PUZZLES-CC PAK	HARTLEY	79.97	61.50	2150	RUN FOR IT	XEROX	39.95	25.60
1347	MILLIONAIRE	BLUECHIP	39.95	25.65	3480	PERRY MASON (MAND. MURDER)	TELLARIUM	39.95	25.65	1247	RUN FOR THE MONEY	SCARBOROUGH	39.95	25.60
3464	MIND OVER MATTER	LEARNING WELL	49.95	32.00	3127	PERSONAL ACCOUNTANT	SOFTSYNC	49.95	33.80	2280	SALES EDGE	HUMAN EDGE	250.00	160.20
2425	MIND OVER MATTER (GR 2-12)	LEARNING WELL	49.95	35.25	2704	PETS LTD	MECC	43.00	29.10	2653	SALT & YOU	MECC	41.00	27.80
1513	MIND PROBER	HUMAN EDGE	49.95	32.00	88	PFS ACCESS-2E/2C	SOFTWARE PUB	70.00	44.80	7	SARGON II	HAYDEN	19.95	13.50
1023	MIND PUZZLES	MECC	29.95	20.30	2567	PFS BEST SELLERS 2E/2C	SOFTWARE PUB	250.00	160.25	2822	SARGON III	HAYDEN	49.95	32.05
2810	MIND PUZZLES (SCHOOL)	MECC	44.00	29.80	185	PFS FILE	SOFTWARE PUB	125.00	80.15	1459	SAT MATH MODULE	HAYDEN	39.95	25.65
2965	MIND WHEEL	SYNAPSE	44.95	28.80	1413	PFS FILE 2E/2C	SOFTWARE PUB	125.00	80.15	1460	SAT SAMPLE TESTS	HAYDEN	39.95	25.65
2298	MINDS OF QUINTAR	SIR TECH	42.95	27.55	2869	PFS FILE 2E/C-SCHOOL	SCHOLASTIC	125.00	84.90	1521	SAT VERBAL MODULE	HAYDEN	19.95	13.50
538	MINER 2049ER	MICRO LAB	40.00	27.25	37	PFS GRAPH	SOFTWARE PUB	125.00	80.15	561	SAT WORD ATTACK SKILLS	HAYDEN	39.95	25.60
1135	MINUS MISSION	DEVEL LEARNING	34.00	21.80	1415	PFS GRAPH 2E/2C	SOFTWARE PUB	125.00	80.15	939	SCHOOL ATTENDANCE MGR <240	EDUWARE	29.95	19.20
3051	MINUS MISSION-SCHOOL	DLM	44.00	29.35	3484	PFS PLAN 2E/2C	SOFTWARE PUB	125.00	80.15	2944	SCHOOL ATTENDANCE MGR <800	K-12	315.00	230.40
421	MIRRORS AND LENSES	EME	35.00	25.65	184	PFS REPORT	SOFTWARE PUB	125.00	80.15	2574	SCIENCE TOOL KIT	BRODERBUND	59.95	38.45
2454	MISS MOUSE	GROLIER	29.95	19.20	1414	PFS REPORT 2E/2C	SOFTWARE PUB	125.00	80.15	2597	SCIENCE VOL.1-BIOL/PHYSICS	MECC	45.00	30.50
1913	MISSING LINKS (HOME PKG)	SUNBURST	44.95	31.70	893	PFS REPORT 2E/C-SCHOOL	SCHOLASTIC	125.00	96.15	2404	SCIENCE/NATURE DATA FILE	GROLIER	14.95	9.60
3221	MISSING LINKS-CLASSICS	SUNBURST	55.00	42.35	798	PFS SOLUTIONS-CHECKS	SOFTWARE PUB	20.00	12.85	133	SCREENWRITER II	SIERRA ON-LINE	129.95	83.35
3220	MISSING LINKS-ENCYCLOPEDIA	SUNBURST	55.00	42.35	511	PFS SOLUTIONS-INVOICES 2E	SOFTWARE PUB	20.00	12.85	2165	SEA SPELLER	FISHER PRICE	21.95	14.85
1876	MISSING LINKS-ENGLISH EDIT	SUNBURST	65.00	50.00	793	PFS SOLUTIONS-TICKLER/CAL	SOFTWARE PUB	20.00	12.85	1220	SEASTALKER	INFOCOM	39.95	25.65
3222	MISSING LINKS-SPANISH	SUNBURST	65.00	50.00	2809	PFS WRITE /E	SOFTWARE PUB	125.00	80.15	2852	SECRET FILER-SCHOOL	SCHOLASTIC	37.50	27.50
1596	MISSING LINKS-YOUNG LIT.	SUNBURST	55.00	42.30	1345	PFS WRITE 2E/C-SCHOOL	SCHOLASTIC	125.00	96.15	3437	SECRETS OF SCIENCE ISLAND	GROLIER	39.95	25.60
852	MISSION ALGEBRA	DESIGNWARE	44.95	28.80	2986	PHANTASIE	SSI	39.95	25.65	3230	SELF-INSTRUCT.MGMT SYS	SUNBURST	195.00	150.00
2092	MIXED NUMBERS	MILTON BRADLEY	49.95	32.00	2030	PHYSICS-ELEM MECH.-SCHOOL	CONTROL DATA	39.95	29.25	3209	SEMICALC-SCHOOL	SUNBURST	95.00	73.10
775	MOCKINGBOARD B SPEECH CHIP	SWEET MICRO	89.00	74.20	2145	PICTURE BUILDING	XEROX	39.95	25.60	41	SENSIBLE SPELLER IV	SENSIBLE	125.00	80.15
2750	MOCKINGBOARD DEV.TOOLKIT	SWEET MICRO	29.95	23.00	2368	PICTURE PERFECT	MINDPLAY	39.95	25.65	1206	SENSIBLE SPELLER-PRO DOS	SENSIBLE	125.00	80.15
2709	MOCKINGBOARD FOR.LANG.TAB.	SWEET MICRO	24.95	19.20	491	PICTURE WRITER	SCARBOROUGH	29.95	20.30	2086	SEQUENCE-BLUE	LEARNING WELL	49.95	32.00
2751	MOCKINGBOARD SPEECH DEV.	SWEET MICRO	39.95	30.75	495	PIE WRITER 2.2 (40/80)	HAYDEN	149.95	96.15	2085	SEQUENCE-RED	LEARNING WELL	49.95	32.00
2807	MODELING (SCHOOL)	MECC	36.00	24.40	526	PIECE OF CAKE - MATH	SPRINGBOARD	34.95	23.65	1488	SHADOWKEEP	TRILLIUM	39.95	25.60
2270	MOEBIUS	ELECT ARTS	59.95	46.15	2907	PINBALL CONSTRUCT SET	ELECTRONIC ARTS	40.00	25.60	1114	SHAPES & COLORS RODEO	DLM	29.95	19.25
2927	MONEY! MONEY!	HARTLEY	39.95	30.75	1390	PITSTOP II	EPYX	40.00	27.05	254	SHAPES AND PATTERNS	LEARNING WELL	49.95	32.00
1695	MONEY! MONEY!-CC PAK	HARTLEY	79.95	61.50	429	PIXIT	BAUDVILLE	49.95	32.00	2692	SHIFTY SAM	RANDOM HOUSE	39.95	27.00
1400	MOPTOWN HOTEL	LEARNING CO	39.95	25.60	1636	PIXIT LIB 1 FONTS/SHAPES	BAUDVILLE	20.00	12.80	447	SIDWAYS	FUNK	60.00	38.40
1950	MOPTOWN HOTEL-SCHOOL	ADDISON-WESLEY	54.95	35.20	1639	PIXIT LIB 2 SCIENCE	BAUDVILLE	20.00	12.80	400	SILICON SALAD	BEAGLE BROS	24.95	16.00
566	MOPTOWN PARADE	LEARNING CO	39.95	25.60	1664	PIXIT LIB 3 KIDSTUFF	BAUDVILLE	20.00	12.80	3107	SIX GUN SHOOTOUT	SSI	39.95	25.60
1969	MOPTOWN PARADE-SCHOOL	ADDISON-WESLEY	54.95	35.20	3424	PLANETARIUM ON COMPUTER	FOCUS	69.00	50.40	589	SIZE & LOGIC	HARTLEY	35.95	27.65
1953	MOTHER GOOSE 1-CC PAK	HARTLEY	79.95	61.50	348	PLANETFALL	INFOCOM	39.95	25.65	3489	SKILLS MASTER	FOLLETT	89.95	57.70
1943	MOTHER GOOSE 1-READING	HARTLEY	39.95	30.75	2005	PLANT BIOLOGY KEYWORD	FOCUS	39.00	28.55	1340	SKY FOX	ELECTRONIC ARTS	40.00	28.50
1951	MOTHER GOOSE 2-CC PAK	HARTLEY	79.95	61.50	1311	PLATO'S CAVE	KRELL	49.95	48.05	299	SLAVE DANCER	SUNBURST	25.00	19.25
1944	MOTHER GOOSE 2-READING	HARTLEY	39.95	30.75	478	POETRY EXPRESS	LEARNING WELL	39.95	25.60	2800	SMARTCOM I	HAYES	119.00	78.20
2789	MOUSE IN THE MAZE	MECC	43.00	29.10	2275	POLLS POLITICS	MECC	36.00	24.40	3239	SMOKING DECISION	SUNBURST	55.00	42.35
2652	MOUSE WRITE 2C/2E ENHANCED	ROGER WAGNER	125.00	80.10	77	POLYNOMIAL PRACTICE-SCHOOL	SUNBURST	55.00	42.30	2582	SMOKING-UP TO YOU	MECC	45.00	30.50
2578	MOVIE MAKER	ELECT ARTS	39.95	30.80	3488	POP 'R SPELL/CHALLENGE	MILLIKEN	39.95	27.05	3490	SNAKE-O-NYMS/WORD FLIP	MILLIKEN	39.95	27.05
3584	MR & MRS POTATOHEAD	RANDOM HOUSE	39.95	25.65	709	POPULATION FLUCTUATIONS	EME	47.50	34.70	465	SNOOPER TROOPS 1	SPINNAKER	32.95	21.15
1235	MR.PIXEL CARTOON (SCHOOL)	MINDSCAPE	39.95	27.05	1449	PORTFOLIO MASTER	INVESTORS SOFT	195.00	187.50	456	SNOOPER TROOPS 2	SPINNAKER	32.95	21.15
1268	MR.PIXEL PRGM SET (SCHOOL)	MINDSCAPE	39.95	27.05	2135	POSTER	SCHOLASTIC	19.95	16.90	1659	SNOOPY SKYWRITER SCRAMBLER	RANDOM HOUSE	39.95	25.60
2175	MR.RODGERS MANY WAYS	CBS	29.95	19.20	3207	POWER DRILL-SCHOOL	SUNBURST	55.00	42.35	1658	SNOOPY TO THE RESCUE	RANDOM HOUSE	39.95	25.65
222	MRS FRISBY/RATS OF NIMH	SUNBURST	25.00	19.25	528	PRACTICALC II	PRACTICORP	49.95	32.05	3586	SNOOPY WRITER	RANDOM HOUSE	39.95	25.65
316	MU MATH/MU SIMP	MICROSOFT	250.00	169.25	2606	PRESCHOOL IQ BUILDER 2	POI	24.95	17.80	1338	SNOOPY'S READING MACHINE	RANDOM HOUSE	39.95	25.65
580	MULTIPLAN (APPLE DOS)	MICROSOFT	95.00	64.35	1646	PREScriptive MATH DRILL-CC	HARTLEY	109.95	84.60	324	SOLO FLIGHT	MICROPROSE	34.95	22.45
573	MULTIPLAN (Z-80)	MICROSOFT	195.00	130.80	2928	PREScriptive MATH DRILLS	HARTLEY	79.95	61.50	147	SOLVE.EQUATIONS (TEACHERS)	SUNBURST	55.00	42.30
712	MULTIPLE SKILLS	HARTLEY	49.95	38.45	2990	PRESIDENT ELECT	SSI	39.95	25.65	3284	SOLVING WORD PROB/MATH	ORANGE CHERRY	67.00	51.55
1957	MULTIPLE SKILLS-CC PAK	HARTLEY	79.95	61.50	1242	PRESIDENT'S CHOICE	SPINNAKER	39.95	25.60	213	SONGWRITER	SCARBOROUGH	39.95	25.60
3290	MULTIPLICATION WHOLE NO'S	ORANGE CHERRY	67.00	51.55	512	PRESIDENT'S PHYS.FITNESS	HARTLEY	45.00	34.65	1105	SORCERER	INFOCOM	44.95	28.85
910	MUNCH A BUG	ROGER WAGNER	39.95	25.60	1196	PRINT SHOP	BRODERBUND	49.95	32.05	2558	SOUND TRACKS (HOME)	MECC	29.95	20.30
1517	MUPPET LEARNING KEYBOARD	KOALA	79.95	51.25	599	PRINTOGRAPHER	ROGER WAGNER	39.95	25.60	2346	SOUNDER	SUNBURST	25.00	19.25
807	MURDER BY THE DOZEN	CBS	34.95	22.40	3561	PRINTSHOP COMPANION	BRODERBUND</							

EAST COAST SOFTWARE (Continued)

1-800-233-3237

CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE
2232	STICKERS	SPRINGBOARD	34.95	22.40	155	TYPING TUTOR 2	MICROSOFT	24.95	16.90	3130	WRITING SKILLS - 2	EDUWARE	39.95	25.60
100	STICKY BEAR A B C	XEROX	39.95	25.60	1237	TYPING TUTOR 3	SIMON & SHUSTER	49.95	32.05	3131	WRITING SKILLS - 3	EDUWARE	39.95	25.60
2610	STICKY BEAR BASKET BOUNCE	XEROX	39.95	25.65	3180	U.S. CONSTITUTION	THOROUGHGOOD	49.95	33.85	3132	WRITING SKILLS - 4	EDUWARE	39.95	25.60
98	STICKY BEAR BOP	XEROX	39.95	25.65	2018	U.S. CONSTITUTION	FOCUS	99.00	72.45	3133	WRITING SKILLS - 5	EDUWARE	39.95	25.60
1931	STICKY BEAR MATH	XEROX	39.95	25.65	3186	U.S. GOVERNMENT FACTS	A.E.C.	19.95	12.70	3066	WRITING WIZARD	SCARBOROUGH	79.95	51.20
99	STICKY BEAR NUMBERS	XEROX	39.95	25.65	3187	U.S. HISTORY FACTS	A.E.C.	19.95	12.70	1251	XYPHUS	PENGUIN	34.95	22.45
2608	STICKY BEAR OPPOSITES	XEROX	39.95	25.65	2389	U.S. WORLD FACTS DATA FILE	GROLIER	14.95	9.60	2011	YOUR BODY SERIES 2	FOCUS	119.00	87.00
1932	STICKY BEAR READING	XEROX	39.95	25.60	2306	ULTIMA 4	ELECT ARTS	59.95	46.15	780	YOUR OWN ARCHITECT.DESIGN	AVANT GARDE	99.95	70.50
2609	STICKY BEAR SHAPES	XEROX	39.95	25.65	122	ULTIMA II	SIERRA ON-LINE	59.95	38.45	827	YOUR OWN INTERIOR DESIGN	AVANT GARDE	69.95	49.35
2296	STICKY BEAR SPELLGRABBER	XEROX	39.95	25.60	2836	ULTIMA III (EXODUS)	ORIGIN SYSTEMS	59.95	38.45	220	YOUR OWN LANDSCAPE DESIGN	AVANT GARDE	69.95	49.35
2290	STICKY BEAR TOWN BUILDER	XEROX	39.95	25.60	404	ULTRATERM APPLWRTR PREBOOT	ADV IDEAS	39.95	27.05	1683	Z-TERM PROFESSIONAL	UNITED SOFTWARE	149.95	96.15
2284	STICKY BEAR TYPING	XEROX	39.95	25.65	2214	ULTRA DISK PACK 1	VIDEX	29.00	20.70	521	ZAXXON	DATASOFT	29.95	19.25
292	STORY MACHINE	SPINNAKER	24.95	16.00	72	ULYSSES & GOLDEN FLEECE	SIERRA ON-LINE	32.95	21.15	296	ZORK I	INFOCOM	39.95	25.65
1889	STORY MAKER-SCHOLASTIC	SCHOLASTIC	39.95	25.60	1473	UNIVERSAL FILE CONVERSION	QUALITY	34.95	25.00	141	ZORK II	INFOCOM	44.95	28.85
366	STORY MAKER-SCHOOL	SCHOLASTIC	125.00	80.15	17	UNLOCKING MAP CODE	RAND MCNALLY	111.00	81.25	379	ZORK III	INFOCOM	44.95	28.85
1243	STORY MAKER-SIERRA	S ON-LINE	34.95	22.45	2164	UP AND ADD EM	FISHER PRICE	21.95	14.85					
1780	STORY TREE	SCHOLASTIC	39.95	25.60	2925	USING A CALENDAR	HARTLEY	79.95	61.50					
2744	STORY TREE-SCHOOL	SCHOLASTIC	75.00	55.00	1601	USING A CALENDAR-CC PAK	HARTLEY	39.95	30.75					
3299	STRANGE ENCOUNTERS	ORANGE CHERRY	67.00	51.55	2757	USING MONEY/MAKING CHANGE	ORANGE CHERRY	50.00	38.45					
2539	STRATEGY	SOUTHWESTERN	59.95	38.15	62	UTILITY CITY	BEAGLE BROS	29.50	18.95					
2272	STUDENT DAILY ATTENDANCE	MECC	200.00	135.40	1907	VERB USAGE 1	HARTLEY	29.95	23.05					
2271	STUDENT RECORDS	MECC	100.00	67.70	1906	VERB USAGE 1-CC PAK	HARTLEY	69.95	53.80					
2192	STUDENT WORD STUDY	HARTLEY	29.95	23.05	1904	VERB USAGE 2	HARTLEY	29.95	23.05					
1753	STUDENT WORD STUDY-CC PAK	HARTLEY	69.95	53.80	1903	VERB USAGE 2-CC PAK	HARTLEY	69.95	53.80					
2586	STUDY GUIDE	MECC	41.00	27.80	1273	VERB USAGE 3	HARTLEY	29.95	23.05					
242	SUCCESS DECIMALS-ADD/SUB	CBS SOFTWARE	24.95	16.00	1868	VERB USAGE 3-CC PAK	HARTLEY	69.95	53.80					
243	SUCCESS DECIMALS-MULT/DIV	CBS SOFTWARE	24.95	16.00	2858	VERB VIPER	DLM	34.00	21.70					
238	SUCCESS FRACTIONS-ADD/SUB	CBS SOFTWARE	24.95	16.00	3053	VERB VIPER-SCHOOL	DLM	44.00	28.20					
239	SUCCESS FRACTIONS-MULT/DIV	CBS SOFTWARE	24.95	16.00	784	VERBS	HARTLEY	32.95	25.35					
2876	SUCCESS W/MATH ADD & SUB	CBS	24.95	16.00	1939	VERBS-CC PAK	HARTLEY	72.95	56.15					
2887	SUCCESS W/MATH MULT & DIV	CBS	24.95	16.00	2008	VERTEBRATE BIOLOGY KEYWORD	FOCUS	39.00	28.55					
233	SUCCESS W/MATH-LINEAR EQ.	CBS SOFTWARE	34.95	22.45	912	VIDEO TOOLBOX	ROGER WAGNER	39.95	25.60					
234	SUCCESS W/MATH-QUADRATIC	CBS SOFTWARE	34.95	22.45	453	VIDEOTERM UTILITIES DISK	VIDEX	37.00	26.55					
1606	SUM DUCKS	SPINNAKER	29.95	19.25	2197	VIDEX-COMPUERVE	COMPUERVE	39.95	30.75					
682	SUMMER GAMES	EPYX	39.95	27.05	2152	VISIBLE COMPUTER-6502	SOFTWARE MASTER	49.95	32.70					
612	SUMMER OF THE SWANS	SUNBURST	25.00	19.25	1478	VISCALC 2E EXPANDER	APPLIED ENG	29.00	19.25					
1326	SUNDOG	FTL GAMES	39.95	27.65	422	VISCALC PRE-BOOT	VIDEX	54.00	36.95					
3293	SUPER QUIZ KID	ORANGE CHERRY	67.00	51.55	247	VOCABULARY BUILDERS 4 PART	ORANGE CHERRY	67.00	51.55					
871	SUPERBASE	PRECISION SOFT	99.00	67.65	550	VOCABULARY CHALLENGE	LEARNING WELL	39.95	25.60					
2934	SUPERCALC 3A (2E ENHANCED)	SORCIMI/US	195.00	130.80	2099	VOCABULARY-CONTEXT CLUES	MILTON BRADLEY	49.95	32.00					
1445	SUPERTEXT PRO (40/80)	MUSE	79.00	50.65	2100	VOCABULARY-PREFIX/SUFFIX	MILTON BRADLEY	49.95	32.00					
2735	SURVEY TAKER	SCHOLASTIC	24.95	16.90	2361	VOWEL SOUNDS 4-PARTS	ORANGE CHERRY	99.00	76.15					
2733	SURVEY TAKER-SCHOOL	SCHOLASTIC	37.50	27.50	1867	VOWELS TUTORIAL	HARTLEY	120.00	92.31					
2360	SURVIVAL MATH (LAB PAK)	SUNBURST	165.00	126.95	1855	VOWELS TUTORIAL-CC PAK	HARTLEY	150.00	115.38					
1809	SURVIVAL MATH (TEACHERS)	SUNBURST	55.00	42.30	3227	WALLY WORD WORKS (4-6)	SUNBURST	65.00	50.00					
1806	SUSPECT	INFOCOM	44.95	28.85	3228	WALLY WORD WORKS (6-9)	SUNBURST	65.00	50.00					
1462	SUSPENDED	INFOCOM	49.95	32.05	3229	WALLY WORD WORKS (SR)	SUNBURST	65.00	50.00					
1283	SWISS FAMILY ROBINSON	WINDHAM	26.95	17.30	341	WAR IN RUSSIA	SUNBURST	79.95	51.25					
1662	SWORD OF KADASH	PENQUIN	34.95	22.40	2629	WARP FACTOR	SSI	39.95	25.60					
708	SYSTEM MANAGER/LABELS 2E/2	MANZANITA	95.00	73.10	2010	WATER & WEATHER (GR 7-12)	FOCUS	89.00	65.15					
1769	T-REX	CBS	49.95	32.00	57	WATER POLLUTION	EME	29.50	21.50					
110	T.A.C.	AVALON HILL	40.00	28.60	1566	WATSON	ALPHA LOGIC	49.95	37.65					
479	TAKE 1	BAUDVILLE	59.95	38.40	3567	WEATHER OR NOT	RAND MCNALLY	90.00	65.85					
1630	TAKE 1-ACTORS & ACTIONS	BAUDVILLE	30.00	19.25	3302	WEATHER SCIENCE SET	ORANGE CHERRY	34.00	26.15					
1594	TAKE 1-HEROES & VILLAINS	BAUDVILLE	30.00	19.25	3416	WEBSTER'S NUMBERS	EDU-WARE	39.95	25.60					
3178	TAKE MYSTERY OUT METRICS	THOROUGHGOOD	49.95	38.45	515	WEBSTER-THE WORD GAME	CBS	29.95	19.20					
2728	TALES OF ADVENTURE-SCHOOL	SCHOLASTIC	37.50	27.50	2491	WEBSTERS SPELL CHECKER	SIMON SCHUSTER	59.95	38.45					
2141	TALES OF DISCOVERY	SCHOLASTIC	24.95	16.95	2216	WELCOME ABOARD	BRODERBUND	39.95	25.65					
2706	TALES OF DISCOVERY-SCHOOL	SCHOLASTIC	37.50	27.50	3109	WELCO ALGEBRA SET	WADSWORTH	275.00	201.25					
2696	TALES OF MYSTERY-SCHOOL	SCHOLASTIC	37.50	27.50	2021	WESTERN CIVILIZATION	FOCUS	89.00	65.15					
2624	TAPPER	SEGA	44.95	33.90	464	WESTING GAME	SUNBURST	25.00	19.25					
3203	TARGETS-SCHOOL	SUNBURST	55.00	42.35	1857	WHAT COMES FIRST-BLUE	LEARNING WELL	49.95	32.05					
163	TASC	MICROSOFT	175.00	118.50	1858	WHAT COMES FIRST-RED	LEARNING WELL	49.95	32.05					
683	TEACH YOURSELF ACCOUNTING	ADDISON-WESLEY	129.95	95.00	202	WHATSIT CORP. (TEACHERS)	SUNBURST	55.00	42.30					
1475	TEACHERS RECORD BOOK	HARTLEY	69.95	44.85	500	WHERE IS CARMEN SANDIEGO	BRODERBUND	39.95	25.65					
1597	TEASERS BY TOBBS (HOME)	SUNBURST	44.95	31.70	1853	WHO-WHAT-WHERE-WHEN (CC)	HARTLEY	75.95	58.40					
2634	TEASERS BY TOBBS (TEACHERS)	SUNBURST	55.00	42.30	1272	WHO-WHAT-WHERE-WHEN-WHY	HARTLEY	39.95	27.65					
3192	TEDDY'S PLAYGROUND-SCHOOL	SUNBURST	55.00	42.35	2503	WHOLE NUMBERS-HOME	CONTROL DATA	39.95	29.25					
3288	TELLING TIME	ORANGE CHERRY	34.00	26.15	2617	WILDERNESS	ELECTRONIC ARTS	50.00	36.55					
3485	TEMPERATURE LAB	HAYDEN	99.95	64.10	1669	WINNIE-THE-POOH	SIERRA ON-LINE	39.95	25.65					
236	TERRAPIN LOGO	TERRAPIN	99.95	64.10	3144	WISHBRINGER	INFOCOM	39.95	25.65					
2142	TERRAPIN LOGO (10 DISK)	TERRAPIN	299.95	203.05	54	WITCH OF BLACKBIRD POND	SUNBURST	25.00	19.25					
1425	TERRAPIN UTILITIES 2	TERRAPIN	19.95	13.50	1296	WITNESS	INFOCOM	39.95	25.65					
2084	THAT'S MY STORY	LEARNING WELL	59.95	38.45	83	WIZ WORKS	DLM	44.00	29.80					
1598	THE FACTORY (HOME)	SUNBURST	44.95	31.70	145	WIZARD & PRINCESS	SIERRA ON-LINE	32.95	21.15					
66	THE FACTORY (TEACHERS)	SUNBURST	55.00	42.30	1186	WIZARD OF ID-WIZTYPE	SIERRA ON-LINE	34.95	22.45					
3154	THE HOBBIT	ADDISON WESLEY	34.95	22.40	1567	WIZARD OF OZ	WINDHAM	26.95	17.30					
1602	THE POND (HOME)	SUNBURST	44.95	31.70	1139	WIZARD OF WORDS	ADVANCED IDEAS	39.95	25.60					
1908	THE POND (TEACHERS)	SUNBURST	55.00	42.30	1453	WIZARD'S TOOLBOX	ROGER WAGNER	39.95	25.60					
1898	THE PUZZLER (TEACHERS)	SUNBURST	55.00	42.30	144	WIZARDRY	SIR TECH	49.95	32.05					
1925	THE RUNNING PROGRAM	MECA	79.95	54.10	1532	WIZPRINT	SIR-TECH	24.95	16.00					
2760	THE VOICE	MUSE	39.95	27.05	2544	WONDERFUL WORLD OF PAWS	SOUTHWESTERN	59.95	46.15					
844	THINK TANK /E	LIVING VIDEO	150.00	96.15	2888	WORD ATTACK!	DAVIDSON	49.95	32.00					
1168	THINK TANK 2+	LIVING VIDEO	150.00	101.55	1228	WORD ATTACK/DATA DISK 4-5	DAVIDSON	19.95	12.80					
392	THINKING AND LEARNING	EME	41.70	30.55	1229	WORD ATTACK/DATA DISK 6-7	DAVIDSON	19.95	12.80					
2556	THREE R'S OF MICROCOMP.	MECC	36.00	24.40	1230	WORD ATTACK/DATA DISK 8-9	DAVIDSON	19.95	12.80					
1660	THWART!	RANDOM HOUSE	39.95	27.05	1231	WORD ATTACK/DATA DISK-SAT	DAVIDSON	19.95	12.80					
377	TIC TAC SHOW	ADVANCED IDEAS	39.95	25.60	1402	WORD CHALLENGE	HAYDEN	19.95	13.50					
56	TIC TAC SHOW-FOREIGN LANG.	ADV IDEAS	19.95	12.80	357	WORD FACTORY 2 PARTS	ORANGE CHERRY	67.00	51.55					
391	TIC TAC SHOW-YOUNG EXPLOR.	ADV IDEAS	19.95	12.80	2931	WORD FAMILIES	HARTLEY	29.95	23.05					
676	TIC TAC-FOREIGN LANGUAGE	ADVANCED IDEAS	19.95	12.70	1851	WORD FAMILIES-CC PAK	HARTLEY	69.95	53.80					
297	TIC TAC-FUN WITH FACTS 1	ADVANCED IDEAS	19.95	12.70	311	WORD HANDLER II	ADVANCED LOGIC	79.95	51.25					
378	TIC TAC-FUN WITH FACTS 2	ADVANCED IDEAS	19.95	12.70	284	WORD HANDLERS PACKAGE	ADVANCED LOGIC	169.95	108.95					
673	TIC TAC-HISTORY	ADVANCED IDEAS	19.95	12.70	2545	WORD HERD-LOOK ALIKES	MECC	41.00	27.80					
674	TIC TAC-SPORTS FACTS	ADVANCED IDEAS	19.95	12.80	2538	WORD HERD-SOUND ALIKES	MECC	41.00	27.80					
675	TIC TAC-YOUNG EXPLORER	ADVANCED IDEAS	19.95	12.80										

EAST COAST SOFTWARE (Continued)

1-800-233-3237

CAT#	NAME	PUB/MANU	LIST	SALE
249	Z-80 PLUS BOARD	APPLIED ENG	139.00	112.95
2949	Z-RAM (2C) W/256K	APPLIED ENG	449.00	392.90
305	ZOOM/MODEM //E	ZOOM TELEPHONIC	179.00	134.65

APPLE BOOKS

CAT#	NAME	PUB/MANU	LIST	SALE
2161	APPLE GRAPHIC/ARCADE DESGN	BOOK CO	19.95	12.80
307	APPLE PASCAL - LUEHRMANN	MCGRRAW/BYTE	22.00	15.70
25	APPLE SOFTWARE 1985	ADDISON-WESLEY	19.95	15.45
490	APPLE USERS GUIDE 2/E	OSBORNE	17.95	12.80
2786	APPLE VISIONS W/DISK	ADDISON WESLEY	39.95	30.75
2191	APPLESOFT BASIC PROG MAN	ADDISON-WESLEY	22.95	14.70
38	APPLESOFT BASIC TOOLBOX	ADDISON-WESLEY	16.95	13.10
2649	APPLESOFT TUTORIAL W/DISK	ADDISON WESLEY	29.95	19.20
1751	APPLEWORKS BOOK	MICROSOFT	16.95	14.15
20	ASSEM LANG FOR APPLE PRGRM	ADDISON-WESLEY	16.95	13.15
536	ASSEMBLY LINES (BOOK)	SOFTALK	19.95	15.35
2997	ASSEMBLY LINES (DISK)	ROGER WAGNER	19.95	10.25
2805	BASIC PROGRAMMING W/PRODOS	ADDISON WESLEY	29.95	19.20
658	BENEATH APPLE DOS	QUALITY	19.95	14.95
1385	BENEATH APPLE PRODOS	QUALITY	19.95	14.95
661	ELEMENTARY APPLE	DATAMOST	14.95	9.95
1763	ENDLESS APPLE	MICROSOFT	15.95	13.30
2795	GRAPHICS FOR THE APPLE	ADDISON WESLEY	12.95	10.00
28	GUIDE TO THE APPLE //C	ADDISON-WESLEY	12.95	10.00
657	KIDS AND THE APPLE	DATAMOST	19.95	9.95
664	LOGO FOR THE APPLE II	MCGRRAW/BYTE	15.95	11.45
1915	POWER OF APPLEWORKS	MGMT INFO SOURC	19.95	14.30
619	POWER OF MULTIPLAN	MGMT INFO SOURC	14.95	10.75
2185	PRO DOS REF MANUAL	ADDISON-WESLEY	29.95	19.20
1203	UNDERSTANDING THE APPLE II	QUALITY	22.95	16.45

MACINTOSH

CAT#	NAME	PUB/MANU	LIST	SALE
2412	AIRBORNE	SILICON BEACH	34.95	22.40
3123	AIRPLANE CONSTRUCTION SET	SIMON SCHUSTER	39.95	25.65
3477	ANCIENT ART OF WAR	BRODERBUND	44.95	28.85
1777	APPLE MACINTOSH BOOK	MICROSOFT	18.95	15.80
3237	ARCHON	ELECT ARTS	39.95	30.80
2266	ART GRABBER W/BODY SHOP	HAYDEN	49.95	33.80
73	ART PORTFOLIO	AXLON	59.95	38.45
876	ASYLUM	SCREENPLAY	39.95	28.65
955	BACK TO BASIC GEN LEDGER	PEACHTREE	175.00	108.60
2909	BACK TO BASICS ACCT SYSTEM	PEACHTREE	375.00	232.70
3142	BARON	BLUECHIP	59.95	38.45
3478	BATTERY PACK	BATT.INCLUD.	49.95	32.05
315	CABLE-MAC TO IMAGEWRITER	COMPUABLE	31.95	22.95
1586	CARD SHOPPE	AXLON	59.95	38.45
1329	CHAMPIONSHIP BASEBALL	ACTIVISION	34.95	23.65
656	CHART (MAC)	MICROSOFT	125.00	84.65
3152	CHEQUEBOOK	INTERMATRIX	74.95	53.70
2220	CHIP WITS	BRAINWORKS	50.00	35.85
2356	CLICK ART (EFFECTS)	T/MAKER	49.95	33.85
3161	CLICK ART (LETTERS)	T/MAKER	49.95	33.85
1190	CLICK ART (PERSONAL)	T/MAKER	49.95	33.80
1536	CLICK ART (PUBLICATIONS)	T/MAKER	49.95	33.80
2354	CLICKON WORKSHEET	T/MAKER	79.95	54.15
330	COMMUNICATION EDGE	HUMAN EDGE	195.00	132.00
2758	CONTROL CENTER	KENSINGTON	99.95	67.65
1223	COPY 2 MAC VERSION 4	CENTRAL POINT	39.95	20.50
2755	CRUNCH	PALADIN	295.00	199.70
3150	CUTTHROATS	INFOCOM	39.95	25.60
1367	CYBORG	BRODERBUND	39.95	25.65
523	DA VINCI - HOUSES	HAYDEN	49.95	32.05
458	DA VINCI - INTERIORS	HAYDEN	49.95	32.05
522	DA VINCI - LANDSCAPES	HAYDEN	49.95	32.05
555	DA VINCI-BUILDING BLOCKS	HAYDEN	79.95	54.15
614	DA VINCI-COMMERCIAL INT	HAYDEN	199.95	128.10
1514	DB MASTER	STONEWARE	195.00	132.00
170	DEADLINE	INFOCOM	59.95	38.45
1354	DEJA VUE	RUBICON	39.95	27.05
3235	DELUXE MUSIC CONSTR.SET	ELECT ARTS	49.95	38.45
3162	DESK ORGANIZER MAC	WARNER SOFT	149.00	106.85
1151	DOLLARS & SENSE	TRONIX	149.95	96.15
329	DOW JONES STRAIGHTALK	DOW JONES	79.00	56.65
2736	DUST COVER - MAC CONSOLE	PRO TECH	12.00	8.60
2564	DUST COVER - MAC KEYBOARD	PRO TECH	7.99	5.75
2203	DUST COVER-MAC & KEYBOARD	PRO TECH	20.00	14.30
3160	ELECTRIC CHECKBOOK	STATE OF ART	79.95	54.15
193	ENCHANTER	INFOCOM	39.95	25.65
1219	ENSEMBLE	HAYDEN	300.00	203.05
3155	EPSTART	SOFTSTYLE	39.95	28.65
2742	FACTFINDER	FORETHOUGHT	150.00	101.55
2359	FILEMAKER	FORETHOUGHT	195.00	132.00
1494	FILEVISION	TELOS	195.00	135.00
1362	FINANCIAL COOKBOOK	ELECTRONIC ARTS	50.00	35.65
1324	FIRST BASE	DESKTOP	195.00	132.00
3500	FLIP-N-FILE (60)	INNOV CONCEPTS	29.95	19.20
1323	FORBIDDEN QUEST	PRIORITY	44.95	30.45
728	FORECAST	MONOGRAM	69.95	44.85
368	FROGGER	SIERRA ON-LINE	39.95	25.60
1926	FRONT DESK	LAYERED	149.95	101.50
1082	GRAPHICS MAGICIAN	PENGUIN	49.95	35.85
3446	HARRIER STRIKE MISSION	MILES	49.95	32.05
1690	HAYDENSELLER	HAYDEN	79.95	51.25
3077	HAYES MODEM CABLE-6 FT	NULL MODEM	26.00	16.60
748	HEAD CLEANING KIT	HEAD	30.00	23.00
1099	HELIX	ODESTA	395.00	283.25
1000	HITCHHIKER'S GUIDE GALAXY	INFOCOM	39.95	25.65
1083	HOME ACCOUNTANT	CONTINENTAL	150.00	101.54
3468	HOME DESIGN	HAYDEN	79.95	51.25
2766	I KNOW IT'S HERE	HAYDEN	59.95	40.60
214	INFIDEL	INFOCOM	49.95	32.05
1758	INSIDE MACPAINT	MICROSOFT	18.95	15.80
1947	INTOUCH	SOFT.MASTERS	149.95	115.40
1795	LODE RUNNER	BRODERBUND	39.95	25.65
2110	MAC ART DEPT.	SIMON SCHUSTER	39.95	25.65
2038	MAC CHECKERS/REVERSI	VIDEX	49.00	33.20
916	MAC COACH-INTRO TO MAC	ATI	75.00	50.80
1314	MAC COMMAND	CREIGHTON	34.95	23.65
1389	MAC FORTH	CREATIVE SOL	149.00	100.90
2475	MAC LION	COMPUTER SOFT.	379.95	256.55
1035	MAC ONE WRITE	SIERRA	245.00	165.85
1909	MAC PRO CARRYING CASE	ALPENLITE	67.90	45.95
1210	MAC STARTER KIT	KENSINGTON	90.00	57.60
1209	MAC SURGE SUPPRESSOR	KENSINGTON	49.95	32.05
1208	MAC SWIVEL STAND	KENSINGTON	35.00	22.45
1353	MAC THE KNIFE	MILES	39.00	25.00
2034	MAC THE KNIFE VOL 2 FONTS	MILES	49.95	32.05
2037	MAC VEGAS	VIDEX	59.00	37.80
1807	MAC-CHALLENGER	AEGIS DEVEL	49.95	33.80
1352	MAC-SLOTS	SOFTLIFE	77.77	52.65
1327	MAC-TRANSFER	SOUTHEASTERN	45.00	34.65
410	MACALENDAR	VIDEX	89.00	57.05
2383	MACATTACK	MILES	49.95	35.80
3087	MACEDGE	THINK EDUC	49.95	33.85
1446	MACFORTH LEVEL II	CREATIVE SOL	249.00	168.55

CAT#	NAME	PUB/MANU	LIST	SALE
3067	MACGAMMON	VIDEX	49.00	31.45
369	MACINTOSH FUN-PACK	VIDEX	39.00	25.00
1910	MACINTOSH PRIMER	DATAMOST	9.95	7.15
3145	MACMANAGER	HARVARD	49.95	35.85
3141	MACMATCH	AXLON	49.95	35.85
695	MACMODEM	MICROCOM	599.00	429.55
814	MACOFFICE	CREIGHTON	39.00	26.40
2683	MACSPELL +	CREIGHTON	99.00	67.05
1984	MACVISION	KOALA	399.95	270.75
1770	MACWORK/MACPLAY	MICROSOFT	18.95	15.80
159	MAGIC PHONE	ARTSCI	199.95	128.10
1207	MAIN STREET FILER	MAIN STREET	199.00	134.70
3153	MAIN STREET WRITER	MAIN STREET	199.00	142.70
3086	MAKE MILLIONS	SCARBOROUGH	49.95	32.00
331	MANAGEMENT EDGE	HUMAN EDGE	250.00	169.25
3009	MARKET MANAGER +	DOW JONES	199.00	134.70
650	MASTER TYPE	SCARBOROUGH	49.95	32.05
3146	MASTERPIECES	HAYDEN	39.95	25.60
3469	MATH BLASTER	DAVIDSON	49.95	32.05
1411	MAXELL 3.5-IN DISKS (10)	MAXELL	55.00	33.35
1159	MC PIC	MAGNUM	49.95	32.05
1466	MC PIC VOL 2	MAGNUM	49.95	32.05
1322	MEGAFLER	MEGAHAUS	195.00	132.00
1149	MEGAMERGE	MEGAHAUS	125.00	84.65
2787	MEMOREX 3.5-IN DISKS (10)	MEMOREX	60.00	33.35
1629	MICROLINE 92-APPLE MAC	OKIDATA	569.00	506.25
1628	MICROLINE 92-MAC CABLE	OKIDATA	29.95	22.50
627	MICROSOFT BASIC (MAC)	MICROSOFT	150.00	101.55
332	MICROSOFT FILE	MICROSOFT	195.00	132.00
3461	MICROSOFT LOGO	MICROSOFT	124.95	80.10
1073	MICROSOFT WORD (MAC)	MICROSOFT	195.00	132.00
1372	MIGHTY MAC	A.L.S.	99.00	67.00
1183	MILLIONAIRE	BLUECHIP	59.95	38.40
3088	MIND OVER MAC	THINK EDUC	49.95	33.85
1870	MIND PROBER	HUMAN EDGE	49.95	32.00
1067	MODEM-PORTABLE MAC/2C	KENSINGTON	140.00	89.75
1300	MOUSE STAMPEDE	MARK OF UNICORN	39.95	27.05
655	MULTIPLAN (MAC)	MICROSOFT	195.00	132.00
1729	MULTIPLAN-MICE & MENUS	MICROSOFT	16.95	14.15
76	MURDER BY THE DOZEN	CBS	34.95	22.40
1946	MUSIC WORKS	HAYDEN	79.95	51.25
1512	NEGOTIATION EDGE	HUMAN EDGE	295.00	199.70
2402	ONE ON ONE	ELECT ARTS	39.95	30.80
1691	OVERVUE	PROVUE	295.00	199.70
1299	PENSACE	PENGUIN	39.95	27.05
2198	PERFECT SCORE	MINDSCAPE	69.95	44.80
1985	PERSONAL ACCOUNTANT	SOFTSYN	89.95	61.55
2566	PFS BUNDLE (512K)	SOFTWARE PUB	175.00	112.10
1078	PFS FILE	SOFTWARE PUB	125.00	84.65
1077	PFS REPORT	SOFTWARE PUB	125.00	84.65
1363	PINBALL CONSTRUCTION SET	ELECTRONIC ARTS	40.00	28.50
204	PLANETFALL	INFOCOM	39.95	25.65
1325	PRESENTATION GRAPHICS-BOOK	MICROSOFT	18.95	15.00
3151	PRO BLACKJACK	INTEL STMT	79.95	57.35
1410	PROPRINT WITH CABLE	CREIGHTON	99.00	67.00
1790	PYRAMID OF PERIL	AEGIS DEVEL	49.95	33.80
689	QUEST	PENGUIN	39.95	25.65
2407	READY SET GO	MANH.GRAPHICS	125.00	80.10
3149	REAL POKER	HENDERSON	39.95	28.65
736	RUN FOR THE MONEY	SCARBOROUGH	49.95	32.05
869	SALES EDGE	HUMAN EDGE	250.00	160.20
1244	SARGON III	HAYDEN	49.95	32.05
3147	SAT	HAYDEN	99.95	67.65
223	SEASTALKER	INFOCOM	39.95	25.65
2417	SMOOTH TALKER	FIRST BYTE	149.95	96.15
219	SORCEROR	INFOCOM	49.95	32.05
3085	SQUIRE	BLUECHIP	69.95	50.10
180	STARCROSS	INFOCOM	59.95	38.45
1962	SUSPECT	INFOCOM	44.95	28.85
183	SUSPENDED	INFOCOM	49.95	32.05
1286	THE MASTER	ORION	99.95	75.65
668	THINK TANK (512K)	LIVING VIDEO	245.00	157.05
1150	THINK TANK MAC	LIVING VIDEO	145.00	92.95
2196	THUNDERSCAN	THUNDERWARE	229.00	194.90
3156	TK SOLVER	SOFTWARE ARTS	249.00	168.55
3159	TK SOLVERPAK-FIN.MGMT	SOFTWARE ARTS	59.00	42.30
3158	TK SOLVERPAK-INTRO.SCI	SOFTWARE ARTS	59.00	42.30
3157	TK SOLVERPAK-MECH.ENG.	SOFTWARE ARTS	59.00	42.30
1081	TRANSYLVANIA	PENGUIN	39.95	25.65
1495	TRIVIA	MIRAGE	49.95	34.60
1700	TRIVIA FEVER	PRO SOFT	39.95	27.05
551	TRIVIA SAVANT	KASTEL TECH	54.95	35.25
2416	TURBO TURTLE	HAYDEN	49.95	32.05
3143	TYCOON	BLUECHIP	59.95	38.40
2701	TYPING INTRIGUE	FORETHOUGHT	49.95	33.80
1239	TYPING TUTOR 3	SIMON & SHUSTER	59.95	39.75
3442	ULTIMA 2	SIERRA	59.95	38.45
2474	ULTIMA 3	ORIGIN	64.95	41.60
646	VERBATIM 3.5-IN DISKS	VERBATIM	78.50	32.70
3136	VIDEOWORKS	HAYDEN	99.95	64.10
3140	WISHBRINGER	INFOCOM	39.95	25.65
173	WITNESS	INFOCOM	39.95	25.65
1103	WIZARDRY	SIR TECH	59.95	38.45
3445	WORD CHALLENGE	HAYDEN	39.95	25.60
333	XYPHUS	PENGUIN	39.95	28.65
95	ZORK I	INFOCOM	39.95	25.65
117	ZORK II	INFOCOM	49.95	32.05
152	ZORK III	INFOCOM	49.95	32.05

COMMODORE 64 SOFTWARE

CAT#	NAME	PUB/MANU	LIST	SALE
1106	50-MISSION CRUSH (D)	SSI	39.95	25.65
1894	9 TO 5 TYPING TUTOR (D)	EPYX	40.00	27.05
3334	A DAY TO FIND OUT (D)	ORANGE CHERRY	67.00	51.55
1684	A LETTER MATCH-MORE/LESS	COMMODORE	19.95	13.55
2741	ACCT PAY MGMT/CHECKS (D)	TIMWORKS	59.95	40.60
2740	ACCT RECEIVE/INVOICE (D)	TIMWORKS	59.95	40.60
3307	ACTIVE READER-NATURE (D)	ORANGE CHERRY	67.00	51.55
3325	ADD/SUB WHOLE NO'S (D)	ORANGE CHERRY	67.00	51.55
3448	ADDITION MAGICIAN (D)	LEARNING CO	34.95	22.40
3336	ADVENT.AROUND WORLD (D)	ORANGE CHERRY	67.00	51.55
3497	ADVENT.WRITER W/GRAPHICS	CODEWRITER	50.00	38.45
1350	ADVENTURE CONST'R N SET (D)	ELECTRONIC ARTS	50.00	29.25
300	AGEAN VOYAGE (R)	SPINNAKER	32.95	22.30
770	AGENT USA (D)	SCHOLASTIC	29.95	19.20
3590	AGENT USA-SCHOOL	SCHOLASTIC	49.95	36.65
1895	AIR RESCUE ONE (D)	MICROPROSE	34.95	22.45
1369	ALCAZAR	ACTIVISION	29.95	20.30
471	ALGEBRA-ADV.LINEAR EQUAT.	CBS	34.95	23.65
420	ALGEBRA-SIM. QUAD. EQUAT.	CBS	34.95	22.40
3247	ALGERNON-SCHOOL	SUNBURST	55.00	42.35
64	ALIEN ADDITION (D)	DEVEL LEARNING	34.00	23.05
3073	ALIEN ADDITION-SCHOOL	DLM	44.00	28.20
3308	ALL ABOUT DINOSAURS(D)	ORANGE CHERRY	34.00	26.15
335	ALLIGATOR MIX (D)	DEVEL LEARNING	34.00	21.80
3084	ALLIGATOR MIX-SCHOOL	DLM	44.00	28.20
1074	ALPHA BUILD (R)	FISHER-PRICE	24.95	16.90
2713	ALPHABET ZOO (D)	SPINNAKER	26.95	18.25

EAST COAST SOFTWARE (Continued)

1-800-233-3237

CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE
914	ERNIE'S MAGIC SHAPES(D)	CBS	24.95	16.00	1087	LIGHT WAVES	CBS	19.95	12.80	727	POLE POSITION (D)	DATASOFT	29.95	20.30
3233	EUROPE ABLAZE	ELECT ARTS	49.95	38.45	854	LINKING LOGIC (R)	FISHER-PRICE	24.95	16.90	2983	POWERFILE (D)	CITY SOFTWARE	89.95	69.20
2722	EVELYN WOOD DYN.READER(D)	TIMEWORKS	59.95	38.40	2989	LODE RUNNER (D)	BRODERBUND	39.95	25.60	2820	PRACTICALC (D)	MICRO SOFTWARE	29.95	19.20
1024	EVELYN WOOD READER-SCHOOL	TIMEWORKS	237.25	160.60	2855	LODE RUNNER (R)	BRODERBUND	39.95	28.65	882	PRACTIFILE 64 (D)	PRACTICORP	29.95	20.30
3248	EXPLORING LOGO-SCHOOL	SUNBURST	49.00	37.70	1607	LODE RUNNER-CHAMPION (D)	BRODERBUND	34.95	22.45	662	PRESIDENT ELECT (D)	SSI	39.95	25.65
1535	F-15 STRIKE EAGLE (D)	MICROPROSE	34.95	22.45	2955	LOGIC BUILDERS-SCHOOL	SCHOLASTIC	49.95	41.65	1711	PRINT SHOP (D)	BRODERBUND	44.95	28.85
1935	FACEMAKER (D)	SPINNAKER	24.95	16.90	1822	LOGIC LEVELS (D)	FISHER PRICE	19.95	13.50	2498	PRINTSHOP GRAPHICS 2	BRODERBUND	24.95	16.00
2373	FACEMAKER (R)	SPINNAKER	32.95	22.30	856	LOGIC LEVELS (R)	FISHER-PRICE	24.95	16.90	1712	PRINTSHOP GRAPHICS LIB (D)	BRODERBUND	24.95	16.00
3320	FAIRY TALES/PRIMARY (D)	ORANGE CHERRY	34.00	26.15	276	LOGIC WORKOUT	AVANT GARDE	34.95	24.65	344	PRO BLACKJACK - USTON (D)	SCREENPLAY	69.95	47.35
963	FAMILY ROOTS (D)	QUINSEPT	185.00	155.15	1738	LOGO (D)	COMMODORE	73.95	54.10	906	PROFESSIONAL TOUR GOLF (D)	SSI	39.95	25.65
1287	FARENHEIT 451 (D)	TRILLIUM	32.95	21.15	879	LOGO DESIGN MASTER (D)	KOALA	39.95	27.05	3070	PROGRAMMABLE SPREADSHEET	PRACTICORP	79.95	51.25
1918	FAST LOAD (R)	EPYX	39.95	27.05	2950	LOGO ROBOT (D)	SCHOLASTIC	24.95	16.95	557	PUZZLE MASTER (D)	SPRINGBOARD	34.95	22.40
1754	FELONY (D)	CBS	34.95	23.65	873	MACH 5 (R)	ACCESS	34.95	23.65	1503	QUESTRON (D)	SSI	39.95	25.65
1850	FIELD OF FIRE (D)	SSI	39.95	25.65	1282	MAGIC SPELLS (D)	LEARNING CO	34.95	22.40	2669	QUIZAGON (D)	SPRINGBOARD	44.95	28.80
3585	FIGURES AND FORMULAS	SCARBOROUGH	29.95	20.30	1097	MAIL NOW (D)	CARDCO	39.95	27.05	1147	RACE CAR 'RITHMETIC (D)	UNICORN	39.95	28.85
1027	FILE & REPORT	SPINNAKER	49.95	33.80	1343	MAIL ORDER MONSTERS (D)	ELECTRONIC ARTS	35.00	24.35	1344	RACING DESTRUCTION SET (D)	ELECTRONIC ARTS	35.00	24.35
587	FINANCIAL COOKBOOK (D)	ELECTRONIC ARTS	50.00	29.25	2378	MAKE A MATCH (D)	SPRINGBOARD	29.95	19.20	1392	RAID ON BUNGELING BAY (D)	BRODERBUND	29.95	19.20
2571	FIREWORKS KIT	ACTIVISION	29.95	20.35	1091	MASK OF THE SUN (D)	BRODERBUND	39.95	25.65	1297	RAID OVER MOSCOW (D)	ACCESS	39.95	27.05
1837	FISH-METIC	COMMODORE	24.95	18.20	2283	MASK PARADE (D)	SPRINGBOARD	39.95	25.60	706	RAILS WEST (D)	SSI	39.95	25.65
3083	FLEET SYSTEM 2	PRO SOFT	79.95	54.15	499	MASTER 64 (D)	ABACUS	39.95	30.75	2379	RAINBOW PAINTER (D)	SPRINGBOARD	34.95	22.40
2973	FLIGHT SIMULATOR II (D)	SUBLOGIC	49.95	35.25	3037	MASTER MATCH	ADVANCED IDEAS	34.95	22.40	301	RANCH (R)	SPINNAKER	32.95	22.30
1830	FORTH LANGUAGE	ABACUS	39.95	30.75	3032	MASTER MATCH-BASIC SKILLS	ADVANCED IDEAS	19.95	12.80	2035	READER RABBIT (D)	LEARNING CO	39.95	25.60
1096	FORTRESS (D)	SSI	34.95	22.40	3034	MASTER MATCH-FOREIGN LANG	ADVANCED IDEAS	19.95	12.80	2215	READING PROFESSOR	COMMODORE	49.95	36.55
3134	FRACTION FEVER	SPRINGBOARD	29.95	19.20	3035	MASTER MATCH-MATH/SOC.ST	ADVANCED IDEAS	19.95	12.80	3304	READING READINESS (D)	ORANGE CHERRY	82.00	63.10
2217	FRACTION FEVER (R)	SPINNAKER	32.95	22.30	3036	MASTER MATCH-SCIENCE/MATH	ADVANCED IDEAS	19.95	12.80	1348	REALM OF IMPOSSIBILITY (D)	ELECTRONIC ARTS	35.00	24.95
1841	FRENZY/FLIP FLOP	COMMODORE	19.95	14.60	1827	MASTER MODEM	VIDEO 7	59.95	39.45	1952	REMEMBER	DESIGNWARE	79.95	54.15
1420	FROG JUMP (D)	MINDSCAPE	29.95	19.20	1886	MASTER TYPE (D)	SCARBOROUGH	39.95	25.60	1292	RENDEZVOUS WITH RAMA (D)	TRILLIUM	32.95	21.15
1905	FROGGER (D)	SIERRA ON-LINE	34.95	22.40	809	MASTER TYPE (R)	SCARBOROUGH	39.95	27.05	2711	RHYMES & RIDDLES (D)	SPINNAKER	29.95	19.20
1153	G.I. JOE (D)	EPYX	40.00	20.30	1647	MASTER TYPE FILER (D)	SCARBOROUGH	39.95	25.60	2221	RINGSIDE SEAT (D)	SSI	39.95	25.65
842	GAME SHOW (D)	ADVANCED IDEAS	39.95	25.60	1089	MASTERING THE SAT (D)	CBS	79.95	51.25	1500	ROBOTS OF DAWN (D)	EPYX	39.95	27.05
858	GAME SHOW-MOVIES & TV (D)	ADVANCED IDEAS	19.95	12.80	829	MATCH WITS (D)	CBS	29.95	19.20	2323	ROCK'N RHYTHM	SPINNAKER	32.95	22.30
857	GAME SHOW-PEOPLE/PLACE (D)	ADVANCED IDEAS	19.95	12.80	2970	MATH BLASTER! (D)	DAVIDSON	49.95	32.00	176	ROCKY'S BOOTS (D)	LEARNING CO.	49.95	33.85
853	GAME SHOW-WIN W/WRDS 1 (D)	ADVANCED IDEAS	19.95	12.80	2024	MATH FACTS	COMMODORE	19.95	14.60	3587	RUN FOR THE MONEY (D)	SCARBOROUGH	39.95	27.00
855	GAME SHOW-WIN W/WRDS 2 (D)	ADVANCED IDEAS	19.95	12.80	2865	MATH MAZE	DESIGNWARE	39.95	27.00	2851	SALES ANALYSIS MGMT	TIMEWORKS	59.95	40.60
558	GAMESHOW-FOR LANG. WORDS	ADVANCED IDEAS	19.95	13.50	837	MATH MILEAGE (D)	CBS	29.95	19.20	1483	SARGON II (D)	HAYDEN	19.95	13.50
235	GAMESHOW-YOU/YOUR WORLD	ADVANCED IDEAS	19.95	12.80	260	MATH RUN	AVANT GARDE	34.95	24.65	2993	SARGON III (D)	HAYDEN	49.95	32.05
933	GEMSTONE WARRIOR(D)	SSI	39.95	27.05	881	MATH SAT 1 (D)	MICRO LAB	35.00	23.70	1650	SCIENCE (D)	CYMBAL	39.95	27.05
2739	GENERAL LEDGER (D)	TIMEWORKS	59.95	40.60	3322	MATH YOUNG CONSUMER(D)	ORANGE CHERRY	67.00	51.55	167	SCREEN DUMPER 64 (D)	MICROWARE	29.95	23.10
905	GEOPOLITIQUE 1990 (D)	SSI	39.95	25.65	1653	MATHEMATICS (D)	CYMBAL	39.95	27.05	1014	SEA SPELLER (R)	FISHER-PRICE	24.95	16.90
726	GERMANY 1985-D	SSI	59.95	38.45	2326	MATHEMATICS (D)	DESIGNWARE	39.95	25.65	1221	SEASTALKER (D)	INFOCOM	34.95	22.45
3450	GERTRUDE'S PUZZLES (D)	LEARNING CO	44.95	30.40	3423	MEASUREMENTS-LNG/MASS/VOL	FOCUS	59.00	43.10	2879	SECRET FILER (D)	SCHOLASTIC	19.95	12.80
3451	GERTRUDE'S SECRETS (D)	LEARNING CO	29.95	19.20	2517	MECH BRIGADE	SSI	59.95	38.40	2848	SECRET FILER-SCHOOL	SCHOLASTIC	37.50	27.50
3060	GET READY READ/ADD-SCHOOL	SUNBURST	55.00	42.30	3249	MEET COMPUTER-BEGINNING	SUNBURST	29.00	22.30	1063	SERPENTINE (D)	BRODERBUND	34.95	23.65
1117	GHOST BUSTERS (D)	ACTIVISION	34.95	23.65	1079	MEMORY CASTLE-SCHOOL	SUNBURST	55.00	42.30	3046	SESAME ST.LETTER GO ROUND	CBS	34.95	22.40
3185	GOLDEN OLDIES	ELECT ARTS	29.95	23.10	985	MEMORY MANOR (R)	FISHER-PRICE	24.95	16.90	457	SEVEN CITIES OF GOLD (D)	ELECTRONIC ARTS	40.00	24.35
1674	GOOFY'S WORD FACTORY (D)	SIERRA ON-LINE	39.95	25.65	942	MERLIN 64	ROGER WAGNER	49.95	32.00	2231	SHAPES PATTERNS-GROUP 1	COMMODORE	19.95	14.60
3439	GOONIES	DATASOFT	39.95	19.20	3382	METEOR MULT-SCHOOL	DLM	44.00	28.20	870	SHERLOCK HOLMES RETURNS	CODEWRITER	19.95	11.55
3331	GOVERNMENT IN U.S.(D)	ORANGE CHERRY	67.00	51.55	3072	METEOR MULTIPLICATION (D)	DLM	34.00	21.80	1726	SIDWAYS	TIMEWORKS	29.95	19.20
1533	GRAMMAR EXAMINER (D)	DESIGNWARE	44.95	28.80	1677	MICKEY'S SPACE ADVEN (D)	SIERRA ON-LINE	39.95	25.65	2648	SIX GUN SHOOTOUT	SSI	39.95	25.60
586	GRANDMA'S HOUSE (D)	SPINNAKER	29.95	20.30	1744	MICRO COOKBOOK (D)	COMMODORE	34.95	25.60	2282	SKY TRAVEL	COMMODORE	34.95	23.65
2996	GRAPH NOW	CARDCO	39.95	27.05	80	MICROLEAGUE BASEBALL	MICROLEAGUE	39.95	27.05	2510	SKYFOX	ELECT ARTS	29.95	24.35
1098	GRAPHICS BASIC (D)	HESWARE	29.95	20.30	1406	MIG ALLEY ACE (D)	MICROPROSE	34.95	22.45	2710	SNOOPER TROOPS #2 (D)	SPINNAKER	32.95	21.15
1491	GRAPHICS MAGICIAN (D)	PENGUIN	34.95	26.90	2601	MILLIONAIRE (D)	BLUECHIP	29.95	19.20	2314	SNOOPER TROOPS 1	SPINNAKER	26.95	17.30
3316	GREAT AMER.FOLK HEROES(D)	ORANGE CHERRY	67.00	51.55	1383	MIND PROBER (D)	HUMANEDGE	29.95	20.30	3431	SNOOPER TROOPS 1-GERMAN	GESSLER	39.95	29.25
1665	GREAT AMER.ROAD RACE	ACTIVISION	29.95	20.30	1845	MIND SHADOW (D)	ACTIVISION	29.95	20.30	3576	SNOOPY SKYWRITE SCRAMBLE	RANDOM HOUSE	29.95	20.30
2697	GREAT MAINE TO CA RACE (D)	HAYDEN	34.95	23.65	109	MINUS MISSION (D)	DEVEL LEARNING	34.00	21.80	3574	SNOOPY TO THE RESCUE	RANDOM HOUSE	29.95	20.30
1318	GROGG'S REVENGE (D)	SIERRA	39.95	23.65	3385	MINUS MISSION-SCHOOL	DLM	44.00	28.20	1043	SNOOPY WRITER	RANDOM HOUSE	29.95	20.30
1875	GULP/ARROW GRAPHICS	COMMODORE	19.95	14.60	1697	MIRAGE DB MGR/REP GEN (D)	MIRAGE CONCEPTS	49.95	33.85	2837	SOFTWARE AUTOMOUTH (D)	TRONIX	59.95	42.90
2478	HALLEY PROJECT	MINDSCAPE	39.95	25.60	666	MIRAGE WORD PROCESSOR (D)	MIRAGE CONCEPTS	29.95	20.30	374	SOLO FLIGHT (C)	MICRO PROSE	34.95	26.90
1060	HALLEY PROJECT (SCHOOL)	MINDSCAPE	49.95	33.80	2450	MISS MOUSE	GROLIER	44.95	31.70	2952	SOLO FLIGHT (D)	MICRO PROSE	34.95	22.40
2911	HARD HAT MACK (D)	ELECTRONIC ARTS	35.00	24.95	1967	MISSING LINKS (HOME)	SUNBURST	44.95	31.70	3321	SOLVE WORDS/MATH (D)	ORANGE CHERRY	67.00	51.55
3184	HEART OF AFRICA	ELECT ARTS	34.95	25.65	3253	MISSING LINKS-CLASSICS	SUNBURST	55.00	42.35	932	SONG MAKER (R)	FISHER PRICE	19.95	13.50
2137	HELLCAT ACE (D)	MICROPROSE	29.95	20.30	2515	MISSING LINKS-ENCY-SCHOOL	SUNBURST	55.00	42.30	259	SONGWRITER (D)	SCARBOROUGH	39.95	27.00
1849	HESMON (R)	HES	39.95	27.05	2537	MISSING LINKS-LIT-SCHOOL	SUNBURST	44.95	28.80	1102	SORCERER (D)	INFOCOM	39.95	25.65
1936	HEY DIDDLE DIDDLE (D)	SPINNAKER	20.95	14.45	960	MISSION ALGEBRA	DESIGNWARE	34.95	26.90	3337	SPACE MISSION PROBLEM(D)	ORANGE CHERRY	34.00	26.15
1652	HISTORY & GEOGRAPHY (D)	CYMBAL	39.95	27.05	1428	MONEY (D)	MICRO-ED	9.95	7.65	1705	SPACE SHUTTLE (D)	ACTIVISION	29.95	20.30
896	HITCHHIKER GUIDE GALAXY(D)	INFOCOM	34.95	22.45	3135	MONKEY SEE/SPELL	HAYDEN	9.95	7.65	2682	SPEED READER II (D)	DAVIDSON	69.95	44.85
1782	HOME ACCOUNTANT (D)	CONTINENTAL	74.95	48.05	897	MONTY PLAYS SCRAMBLE (D)	EPYX	39.95	27.05	2832	SPELL DIVER (D)	SCHOLASTIC	29.95	19.20
1266	HOME ORGAN/ADDRESSBOOK (D)	BATTERIES INCL	19.95	12.80	1284	MORTUARY HOTEL (D)	LEARNING CO	39.95	25.60	2826	SPELL DIVER-SCHOOL	SCHOLASTIC	49.95	36.65
493	HOME ORGAN/AUDIO VIDEO (D)	BATTERIES INCL	19.95	12.80	3453	MOTOWN PARADE (D)	LEARNING CO	39.95	25.60	23	SPELL IT (D)	DAVIDSON	49.95	32.05
1755	HOME ORGAN/CHECKBOOK (D)	BATTERIES INCL	19.95	12.80	934	MOVIE CREATOR (D)	FISHER PRICE	19.95	13.50	602	SPELL NOW! (D)	CARDCO	39.95	27.05
1844	HOME ORGAN/HOME INVEN (D)	BATTERIES INCL	19.95	12.80	1042	MOVIEMAKER (D)	RESTON	34.95	26.95	822	SPELL PACK (PAPERCLIP) (D)	BATTERIES INCL	49.95	32.05
886	HOME ORGAN/MAIL LIST (D)	BATTERIES INCL	19.95	12.80	181	MR & MRS POTATOHEAD	RANDOM HOUSE	29.95	20.30	1365	SPELL WIZARD	DATASOFT	49.95	33.80
1880	HOME ORGAN/PHOTOS (D)	BATTERIES INCL	19.95	12.80	1234	MR PIXEL CARTOON (SCHOOL)	MINDSCAPE	39.95	27.05	2312	SPELLAGRAPH (D)	DESIGNWARE	39.95	27.05
765	HOME ORGAN/RECIPIES (D)	BATTERIES INCL	19.95	12.80	1252	MR PIXEL PRGM SET(SCHOOL)	MINDSCAPE	39.95	27.06	2311	SPELLAKAZAM (D)	DESIGNWARE	39.95	25.60
2210	HOME ORGAN/STAMPS (D)	BATTERIES INCL	19.95	12.80	2197	MR.RODGERS MANY WAYS (D)	CBS	29.95	20.30	2310	SPELLICOPTER (D)	TIMEWORKS	24.95	16.90
3068	HOME PAK (D)	BATTERIES INCL	49.95	32.05	2916	MULE (D)	ELECTRONIC ARTS	40.00	28.50	1022	SPELLBOUND	DESIGNWARE	39.95	25.60
2297	HOMEWORD (D)	SIERRA ON-LINE	49.95	32.05	3326	MULT.OF WHOLE NO'S(D)	ORANGE CHERRY	67.00	51.55	2310	SPELLICOPTER (D)	ORANGE CHERRY	34.00	26.15
3065	HOMEWORD SPELLER (D)	SIERRA	34.95	22.45	1523	MUPPET LEARN KEYBOARD (D)	KOALA	79.95	51.25	3312	SPELLING (D)	DLM	34.00	21.80
3562	HOMEWORK HELP-MATH	SPINNAKER	32.95	21.15	763	MURDER BY THE DOZEN (D)	CBS	34.95	22.40	3389	SPELLING WIZ (D)	DLM	44.00	28.20
1029	HOMEWORK HELP-WORD PRBLMS	SPINNAKER	32.95	22.30										

EAST COAST SOFTWARE (Continued)

1-800-233-3237

CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE	CAT#	NAME	PUB/MANU	LIST	SALE
444	TELENGARD (D)	ORANGE CHERRY	28.00	20.00	1333	KOALA GRAPHIC TABLET-DISK	KOALA	79.95	51.25	102	NEC 1201 GREEN MONITOR	NEC	179.00	145.15
3323	TELLING TIME (D)	ORANGE CHERRY	34.00	26.15	1883	KRAFT JOYSTICK - C64/V20	KRAFT	9.95	6.40	1216	NEC 1205 AMBER MNTR W/AUD	NEC	190.00	161.25
1836	TEMPLE OF APASHAI (D)	EPYX	40.00	27.05	3171	PPI INTERFACE W/GRAPHICS	DATASHARE	49.95	46.10	101	NEC 1215 COLOR MONITOR	NEC	399.00	333.35
2874	THE CONSULTANT (D)	BATTERIES INCL	79.95	51.30	1461	TEKNIKA MONITOR CABLE	TEKNIKA	29.95	17.95	2770	NECEN VOYAGE	ADDISON WESLEY	9.95	7.65
866	THE DAY BEFORE (D)	CODEWRITER	19.95	11.55	2281	VIDEO/AUDIO CABLE (4 PLUG)	INTEREX	7.15	5.25	2046	OLYMPIA MULTISTRIKE RIBBON	OLYMPIA	10.95	7.85
3241	THE FACTORY-SCHOOL	SUNBURST	55.00	42.35	1916	WICO 3-WAY JOYSTICK	WICO	34.95	22.35	1734	OLYMPIA RO LQ PRINTER	OLYMPIA	499.00	390.00
3139	THE HOBBIT	ADDISON WESLEY	29.95	19.20	2	WICO JOYSTICK	WICO	29.95	20.30	1797	PANASONIC KXP 1091 PRINTER	PANASONIC	399.00	275.00
1148	THE POND (D)-SCHOOL	SUNBURST	55.00	42.30	8	WICO THE BOSS JOYSTICK	WICO	19.95	12.15	1315	PANASONIC KXP1092 PRINTER	PANASONIC	599.00	420.50
2754	THE POND - HOME	SUNBURST	44.95	31.70						2316	PANASONIC KXP1093 PRINTER	PANASONIC	869.00	598.75
3059	THE RIGHT TURN-SCHOOL	SUNBURST	55.00	42.30						1796	PANASONIC KXP110 RIBBON	PANASONIC	13.50	9.00
859	TIC TAC SHOW (D)	ADVANCED IDEAS	34.95	22.40						2999	PAPER-RAINBOW PACK	EASTERN	17.95	9.30
58	TIC TAC SHOW-FOREIGN LANG	ADV IDEAS	19.95	13.50						3415	PAPER-RAINBOW PACK +	EASTERN	17.95	12.15
432	TIC TAC SHOW-YOUNG EXPLOR	ADV IDEAS	19.95	13.50						2893	PARAL PRINTER EXT CABLE 6'	NULL MODEM	34.95	21.80
860	TIC TAC-FUN W/FACTS 1 (D)	ADVANCED IDEAS	19.95	12.80						1160	PASCAL PRIMER	HOWARD SAMS	17.95	12.80
861	TIC TAC-FUN W/FACTS 2 (D)	ADVANCED IDEAS	19.95	12.80						1928	POPCOM 1200 MODEM	PRENTISS	475.00	304.40
863	TIC TAC-HISTORY (D)	ADVANCED IDEAS	19.95	12.80						1710	PRINTER STAND - 16 INCH	COMPUTERISE	39.95	27.05
864	TIC TAC-SPORTS FACTS (D)	ADVANCED IDEAS	19.95	12.80						256	PRINTSHOP PAPER PACK	BRODERBUND	19.95	12.70
766	TIGERS IN THE SNOW (D)	SSI	39.95	25.65						1279	PROWRITER NYLON RIBBON	ELEPHANT MEM	10.00	6.65
3332	TIME MACHINE TRAVEL (D)	ORANGE CHERRY	67.00	51.55						2259	PROWRITER RIBBON (BLUE)	DI TECH	9.95	5.10
835	TIMEBOUND (D)	CBS	29.95	19.20						2255	PROWRITER RIBBON (BROWN)	DI TECH	9.95	5.10
868	TIMES WRATH (D)	CODEWRITER	19.95	11.55						2253	PROWRITER RIBBON (GREEN)	DI TECH	9.95	5.10
1516	TIMEWORKS 1-2-3 PROMOTION	TIMEWORKS	149.85	67.05						2252	PROWRITER RIBBON (PURPLE)	DI TECH	9.95	5.10
1430	TINK'S ADVENTURE (D)	MINDSCAPE	24.95	16.00						2276	PROWRITER RIBBON (RED)	DI TECH	9.95	5.10
2768	TINK'S SUBTRACTION FAIR	MINDSCAPE	24.95	16.00						2247	PROWRITER RIBBON (YELLOW)	DI TECH	9.95	5.10
1271	TINKS ADVENT (TEACHERS)	MINDSCAPE	39.95	27.05						2322	QUME 4 MULTISTRIKE RIBBON	QUME	11.40	7.65
1269	TINKS SUBTRACTION (SCHOOL)	MINDSCAPE	39.95	27.05						617	QUME CAREER 10 PRINTWHEEL	QUME	9.95	7.05
507	TRACER SANCTION (D)	ACTIVISION	29.95	20.30						503	RITEMAN PLUS PRINTER	INFORUNNER	399.00	312.80
913	TRAINS (D)	SPINNAKER	26.95	17.30						2690	RITEMAN RIBBON	INFORUNNER	12.00	7.70
3058	TRAP-A-ZOID (D)	DESIGNWARE	39.95	27.00						390	RITEMAN TRACTOR FEED	INFORUNNER	55.00	38.50
839	TRILOGY OF TIME (D)	CODEWRITER	19.95	11.55						3371	RUBY SURGE PROTECTOR	CURTIS	89.95	60.65
286	TRIVIA ARCADE (D)	INTEL STATEMENT	34.95	23.65						3289	SAPPHIRE SURGE PROTECTOR	CURTIS	79.95	54.15
1702	TRIVIA FEVER (D)	PRO SOFT	39.95	27.05						221	SCOOTER SURGE PROT STRIP-6	SCOOTER	48.35	37.20
2230	TRIVIA FEVER VOL. 2	PRO SOFT	24.95	16.90						3582	SERIAL CABLE M/F 25 PINS	NULL MODEM	30.25	19.40
2224	TURTLE TOLAND JR. (C/D)	HESWARE	34.95	23.75						2850	SERIAL CABLE M/M 6' 9 PIN	NULL MODEM	22.50	18.75
2693	TURTLE TRACKS (D)	SCHOLASTIC	29.95	19.20						2452	SERIAL INTERFACE CABLE	INTEREX	23.95	18.60
2394	TYCOON (D)	BLUECHIP	59.95	40.60						2956	SMART CABLE SERIAL CONNECT	IQ TECHNOLOGIES	89.95	75.10
877	TYPE 'N' WRITE (R)	HESWARE	29.95	20.30						900	SMART CAT 103/212	NOVATION	595.00	447.45
679	TYPE TUTOR/WORD INVADE (D)	ACADEMY	24.95	17.80						196	SMARTMODEM - STACK	HAYES	199.00	153.85
2338	TYPIING PROFESSOR	COMMODORE	19.95	14.60						1471	SMARTMODEM 1200 BAUD	HAYES	599.00	453.85
1238	TYPIING TUTOR 3 (D)	SIMON & SHUSTER	39.95	25.65						1724	SMARTMODEM 2400	HAYES	899.00	729.50
1065	ULTIMA II (D)	SIERRA ON-LINE	59.95	40.60						1919	SMITH BELLOWS DISKBOX (40)	SMITH BELLOW	29.95	21.45
884	ULTIMA III (EXODUS) (D)	ORIGIN	54.95	40.60						1920	SMITH BELLOWS DISKBOX (60)	SMITH BELLOW	34.95	24.95
541	ULTRABASIC-64 (D)	ABACUS	27.95	21.50						1921	SMITH BELLOWS DISKBOX (80)	SMITH BELLOW	39.95	28.60
1056	UP & ADD 'EM (R)	FISHER-PRICE	24.95	16.90						148	SQUASH SURGE SUPPRESSOR	EPD	99.95	76.90
3329	USING MONEY/CHANGE (D)	ORANGE CHERRY	50.00	38.50						1277	STARWRITER FILM RIBBON	ELEPHANT MEM	5.50	4.50
3395	VERB VIPER (D)	DLM	34.00	21.80						1278	STARWRITER NYLON RIBBON	C.ITOH	5.75	4.65
3393	VERB VIPER-SCHOOL	DLM	44.00	28.20						1374	SUP'R MOD - UNIVERSAL	M&R	69.95	52.95
1072	VIP TERMINAL XL	SOFTLAW	49.95	38.40						1259	TAXAN 12 IN. AMBER MONITOR	TAXAN	180.00	133.35
1529	VISIBLE COMPUTER 6502 (D)	SOFT MASTER	40.00	25.65						1258	TAXAN 12 IN. GREEN MONITOR	TAXAN	179.00	125.25
3315	VOCABULARY BUILDERS(D)	ORANGE CHERRY	67.00	51.55						2557	TAXAN 410 RGB HI-RES	TAXAN	469.95	384.65
3306	VOWEL SOUNDS (D)	ORANGE CHERRY	99.00	76.15						1528	TAXAN COLOR MNTR	TAXAN	399.00	300.30
3338	WEATHER SCIENCE SET(D)	ORANGE CHERRY	34.00	26.15						1250	TAXAN RGB HI-RES 12-IN	TAXAN	399.00	360.60
1638	WEATHER TAMERS (D)	CBS	19.95	12.80						1464	TEKNIKA COLOR MONITOR	TEKNIKA	499.95	297.45
834	WEBSTER-THE WORD GAME (D)	CBS	29.95	19.20						3165	THE SOURCE SUBSCRIPTION	SOURCE	49.95	33.80
2995	WESTERN CIVILIZATION	FOCUS	89.00	65.15						2112	UNIVERSAL PRINTER STAND	KENSINGTON	29.95	19.25
2345	WHAT'S NEXT/LTRS-NUMBERS	COMMODORE	19.95	14.60						2992	VERBATIM DS/DD DISKS (10)	VERBATIM	47.50	23.10
875	WHISTLER'S BROTHER (D)	BRODERBUND	29.95	19.25						2347	VERBATIM HEAD CLEAN KIT	VERBATIM	9.70	6.10
2511	WINGS OF WAR	SSI	39.95	25.60						1721	VERBATIM SS/DD HARDPACK	VERBATIM	35.00	23.35
1681	WINNIE THE POOH (D)	SIERRA ON-LINE	39.95	25.65						93	VERBATIM SS/DD SOFTPACK	VERBATIM	34.50	16.40
3137	WISHBRINGER	INFOCOM	34.95	22.40						3108	WABASH SS/DD DISKS (10)	WABASH	25.00	10.80
1885	WITNESS (D)	INFOCOM	34.95	22.45						2849	WORDSTAR MADE EASY	OSBORNE	12.95	9.20
742	WIZARD OF ID WIZMATH (R)	SIERRA	34.95	23.65										
2291	WIZARD OF WORDS (D)	ADVANCED IDEAS	34.95	22.40										
2684	WORD ATTACK (D)	DAVIDSON	49.95	32.00										
2645	WORD ATTACK-DATA 4-5	DAVIDSON	19.95	13.50										
2672	WORD ATTACK-DATA 6-7	DAVIDSON	19.95	13.50										
2674	WORD ATTACK-DATA 8-9	DAVIDSON	19.95	12.80										
2675	WORD ATTACK-SAT	DAVIDSON	19.95	12.80										
3443	WORD CHALLENGE (D)	HAYDEN	39.95	27.05										
3313	WORD FACTORY (D)	ORANGE CHERRY	67.00	51.55										
1595	WORD FLYER (D)	ELECTRONIC ARTS	35.00	24.95										
3399	WORD INVASION (D)	DLM	34.00	21.80										
3397	WORD INVASION-SCHOOL	DLM	44.00	28.20										
3403	WORD MAN (D)	DLM	34.00	21.80										
3401	WORD MAN-SCHOOL	DLM	44.00	28.20										
3407	WORD MASTER (D)	DLM	34.00	21.80										
3405	WORD MASTER-SCHOOL	DLM	44.00	28.20										
3305	WORD PICTURES	ORANGE CHERRY	67.00	51.55										
3411	WORD RADAR (D)	DLM	34.00	21.80										
3409	WORD RADAR-SCHOOL	DLM	44.00	28.20										
3317	WORD RANGER (D)	ORANGE CHERRY	30.00	23.10										
209	WORD SCRAMBLER/SPELL	AVANT GARDE	34.95	24.65										
823	WORD SPINNER (D)	LEARNING CO	34.95	22.40										
1351	WORD WRITER W/SPELL	TIMEWORKS	49.95	32.00										
2889	WORDPRO 3+ W/SPELL (D)	PROFESSIONAL	99.95	67.65										
3314	WORKING WITH ALPHABET(D)	ORANGE CHERRY	34.00	26.15										
1185	WORLD'S GREAT BASEBALL (D)	EPYX	35.00	23.65										
1095	WRITE NOW! (R)	CARDCO	49.95	33.80										
3318	WRITING FUNDAMENTALS(D)	ORANGE CHERRY	67.00	51.55										
575	XREF-64 (D)	ABACUS	17.95	13.80										
240	XYPHUS (D)	PENGUIN	34.95	23.75										
3425	YOUR BODY-SERIES 2	FOCUS	119.00	87.00										
2871	YOUR COMMODORE 64	OSBORNE	14.95	10.75										
1156	ZAXXON (D)	SYNAPSE	39.95	27.05										
1741	ZORK I (D)	COMMODORE	39.95	27.15										
1879	ZORK II (D)	INFOCOM	39.95	28.65										
1882	ZORK III (D)	INFOCOM	39.95	28.65										

COMMODORE 64 BOOKS

CAT#	NAME	PUB/MANU	LIST	SALE
1635	1541 REPAIR/MAINT.BOOK	ABACUS	19.95	16.70
2825	ADVANCED BASIC BOOK-C64	BRADY	12.95	11.10
1914	ADVANCED MACH. LANG. C64	ABACUS	14.95	12.50
525	ANATOMY 1541 (OPT DISK)	ABACUS	14.95	12.50
1742	ANATOMY OF 1541 DISK DRIVE	ABACUS	19.95	16.65
1860	ANATOMY OF C-64	ABACUS	19.95	16.65
3011	ASSEMBLY LANG FOR KIDS	ROGER WAGNER	14.95	11.50
1624	COMM 64 PRGM REF GUIDE	H.W. SAMS	19.95	14.30
443	COMM 64 USER ENCYCLOPEDIA	BOOK CO.	14.95	10.50
546	ELEMENTARY COMMODORE	DATAMOST	14.95	10.80
2815	GETTING MOST FROM YOUR C64	BRADY	14.95	12.85
1859	GRAPHICS BOOK FOR C-64	ABACUS	19.95	16.65
1119	INSIDE COMMODORE DOS	DATAMOST	19.95	14.05
1320	KIDS AND THE COMMODORE 64	DATAMOST	19.95	15.05
1762	MACHINE LANGUAGE FOR C-64	ABACUS	14.95	12.50
1861	PRINTER BOOK FOR C-64	ABACUS	19.95	16.65
2551	SURVIVAL GUIDE TO 1541	STONERIDGE	5.00	3.75

EPROM PROGRAMMING SYSTEM FOR CP/M-80, CP/M-86, MS-DOS

2708
2758
2716
2732
2764



2516
2732A
27128
27256
27CXX

- STAND ALONE BOARD - ELECTRONIC SWITCHING OF EPROM TYPES - COMPREHENSIVE MANUAL
- USES 24 VOLT XFORMER FOR POWER - ALL SUPPLIES/TIMING ON BOARD - EASY INSTALLATION

****CONNECTS TO ANY PARALLEL PRINTER INTERFACE****

REQUIRES 8 OUTPUT DATA BITS AND THE BUSY LINE - THE BUSY LINE IS USED AS A HIGH SPEED SERIAL INPUT - THIS INTERFACE SUPPORTS COMPLETE READING AND PROGRAMMING THE UNIT MAY ALSO BE CONNECTED TO A STANDARD 8 BIT INPUT/OUTPUT PORT

****CONTROL PROGRAM COMMANDS****

- PROGRAM EPROM(S) FROM DISK - SAVE EPROM(S) TO DISK - READ DISK FILE INTO RAM
- PROGRAM EPROM(S) FROM RAM - READ EPROM(S) INTO RAM - COMPARE EPROM WITH RAM
- VERIFY EPROM IS ERASED - COPY EPROM - DISPLAY/MODIFY RAM(MONITOR)
MONITOR HAS 11 SUB COMMANDS: FILL-DUMP-XFER-EXAMINE-MODIFY-BIAS-PRGRM-VERIFY, ETC

ASSEMBLED & TESTED UNIT WITH COMPLETE DOCUMENTATION AND SOFTWARE ON DISKETTE **\$199**

COMPLETE PARTS KIT - SOFTWARE AND DOC - \$179 / BAREBOARD, SOFTWARE & DOC - \$69
SOFTWARE AVAILABLE ON 8 & 5 1/4 DISK FOR IBM, KAYPRO AND MANY OTHER FORMATS

TO ORDER SEND CHECK, MONEY ORDER, WRITE OR CALL

ANDRATECH
P.O. BOX 222
MILFORD, OHIO 45150
(513) 752-7218

CALL OR WRITE FOR MORE INFORMATION --- ADD \$4.00 FOR SHIPPING
OHIO RES. ADD 5.5% TAX --- VISA/MC. ACCEPTED --- \$3.00 FOR COD

Spectrum Holobyte Announces "Tellstar" For Macintosh

Spectrum HoloByte, Inc., leading publishers of graphically advanced computer products, recently announced the 512K Macintosh version of its top-ranked astronomy software package, TELLSTAR.

"TELLSTAR for the Macintosh is entirely controlled by the mouse," says president Jeff Sauter. "The high resolution of the Macintosh is ideal for the TELLSTAR because each star and planet is so easily distinguishable."

Other enhancements include the simultaneous display of stellar objects and astronomical data, and incorporation of the Macintosh pull-down menus that allow the user to locate

and identify objects, change the viewing direction, and access utilities.

TELLSTAR, Macintosh version, will also provide viewers information on Halley's Comet, now included in the program's repertoire of solar bodies, star clusters, galaxies, nebulae, and constellations. Halley's Comet is expected to be visible during 4th quarter of 1985 by telescope and, beginning 1st quarter of 1986, with the naked eye.

TELLSTAR was created by Evan Scharf, a computer consultant and avid amateur astronomer, and is adapted for

Macintosh computers by Orca Systems. Spectrum HoloByte currently publishes TELLSTAR for IBM and Apple II computers with the Macintosh version available October 1985.

TELLSTAR Level I is priced at \$49.95 and includes all basic functions and one star table. Level II with three detailed star tables is priced at \$79.85.

For further information contact Spectrum HoloByte Inc., 1050 Walnut, Suite 325, Boulder, CO 80302, (303) 443-0191.

Mention that you read about it in the *Computer Shopper*. ●

DISCOUNT DISKS

All disks boxed with label, envelopes & sleeves. 100% certified error free with lifetime warranty.



maxell ELEPHANT DATATECH

3 1/2" DISKS

SS/DD			\$26.90
DS/DD			33.25

5 1/4" 48 TPI DISKS

SS/SD Soft Sector	13.90	12.90	8.99
SS/SD 10 Sector			9.15
SS/SD 16 Sector			9.15
SS/DD Soft Sector	13.90	13.90	9.25
SS/DD 10 Sector		14.50	9.50
SS/DD 16 Sector		14.50	9.50
DS/DD Soft Sector	17.95	15.00	11.90
DS/DD 10 Sector		15.90	12.25
DS/DD 16 Sector		15.90	12.25

5 1/4" 96 TPI DISKS

SS/DD Soft Sector	23.10	21.00	13.90
SS/DD 10 Sector			14.50
SS/DD 16 Sector		21.00	14.50
DS/DD Soft Sector	29.50	25.50	15.75
DS/DD 16 Sector		25.50	18.95
DS/High Density for IBM AT	34.25		21.50

8" DISKS

SS/SD Soft Sector	27.90		16.60
SS/SD IBM 128 B/S 26 Sector	27.90	22.25	15.60
SS/SD Shugart 32 Sector W/Hub		22.25	18.75
CPT 6000/8000			20.95
SS/DD Soft Sector Unformatted	27.90		20.95
SS/DD IBM 128 B/S 26 Sector		29.95	20.95
SS/DD 32 Sector			20.95
DS/DD Soft Sector Unformatted	29.70	34.25	20.00
DS/DD IBM 26 Sector 256 Bytes			24.60
DS/DD 8 Sector 1024 Bytes		34.25	20.50

PINNACLE SERIES

SS/DD	.75
DS/DD	.89

Add 10% for less than 3 boxes. Shipping \$4 except to zip codes over 50000 - \$6. Visa or Mastercard orders under \$50 must pay a \$2.00 credit verification charge. Cashiers checks, money orders, and personal checks allow a 2% discount but personal checks take two weeks to clear. N.J. residents add 6% sales tax.

GREEN TREE

VISA

COMPUTER SUPPLIES

MasterCard

11 Osage Road, Rockaway, N.J. 07866
Inquires or N.J. Orders - (201) 627-9472

ORDERS ONLY - (800) 367-2897

Copy Protection Continued from page 122

ing coming on strong, vendors are moving to heavier defensive schemes, contemplating a universal standard for expensive and awkward hardware lock-and-key systems ("fuse boxes") to prevent piracy.

Like the nuclear arms race, the whole thing begins to get costly, redundant, and ridiculous, and yet it continues. The inevitable reaction has set in among legitimate users, who are the ones paying the highest price. Copy protection not only leaves the latter stranded when their disks develop a

glitch, imposing costly delays in getting business records back on line, but increasingly the protection schemes impose new protocols on loading programs to memory or to hard disk, especially for compatibles. Vendors are forced to provide special installation support; all of which frays nerve endings and costs mucho dinero.

Revolt Is Underway

Many corporate customers are refusing to buy protected software. User groups are revolting. At the March 1985 Softcon meeting, a "Bill of Rights for Software Users" was presented by the Capital PC Users' Group, demanding that

users have the right to use their software without "extraneous functions" such as protection codes and authorization devices. The Microcomputer Managers Association of New York, representing 80 Fortune-500 companies, has taken an aggressive stand against the "fusebox" add-on proposed by Lotus and others as an industry-side standard.

"We have a combined dollar purchasing power of about \$200 million," declared Alan Gross, group spokesman, "and we're against this protection scheme...we're going to speak with our dollars!"

In response to the growing resentments out there, the vendors have been reversing themselves. Much new software, originally issued in a copy protected form, is being switched to unprotected. MicroPro (Wordstar etc.) in February after only 10 weeks made one of the fastest turn-arounds in history, removing all copy protection from their newest release Wordstar 2000. Many are going to "site licensing" as an alternative, permitting large corporations a reduced rate on multi-user installations, with limited copying privileges.

Borland (SideKick, Turbo Pascal, etc.) has given up its two-tiered scheme (higher cost for copyable versions). Many companies have proven both successful and profitable, like the original Wordstar, Multimate, Perfect Writer, and so many others, in the absence of copy protection and with acknowledged widespread piracy. Microrim (Clout, R-Base) in March 1985 announced that from now on it "would depend on the integrity of their users."

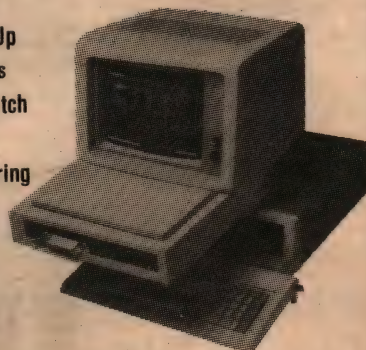
PC POWER CUSTOMIZE YOUR OWN ENCLOSURE

BASIC SYSTEM:

+ SPACE FOR TWO HALF-HIGH DISKS AND TAPES
+ 40 WATT SWITCHING POWER SUPPLY
+ SIX SWITCHED-FILTERED POWER OUTLETS
+ CRT SWIVEL
= \$249.00
+ YOUR OWN OPTIONS

• AVAILABLE OPTIONS •

- Hard Disk 10 Megabytes and Up
- Tape Backup 10/20 Megabytes
- Single Front Panel On/Off Switch
- CRT "Ball" Swivel
- Power Line Spike/Noise Filtering
- Low Voltage Alarm/Lockout
- Telephone Noise Filtering
- Tape/Disk Data Cable
- Cooling Fan



WRITE TODAY FOR OPTIONS PRICING OR CALL -

SAVE-DATA, INC.

904 Bob Wallace Avenue, Suite 128
Huntsville, Alabama 35801
Phone (205) 539-6461

Continued on page 160

Typographer Adds Professional Document Design to Microsoft Line of Productivity Software for the Macintosh

Microsoft Corporation has announced Typographer, a professional document design system, and the latest release in the company's line of productivity software for the Apple Macintosh computer.

Typographer brings the tools of professional print design and true desktop publishing to Macintosh users. By combining Typographer with Microsoft Word for the Macintosh, users can produce high-quality documents of every kind, from single-page newsletters to full-length technical manuals, reports contracts, and books.

"Our market research has shown us that people typically address writing and layout as related, but separate tasks," commented Ida Cole, Vice President of Applications at Microsoft. "Now people can look to Microsoft for professional solutions to both of these challenges--serious word processing can be accomplished with Microsoft Word for the Macintosh, and serious document design and composition can be accomplished with Typographer. Typographer offers a variety of features previously unavailable outside the realm of the professional print shop, and makes desktop publishing an affordable reality for small businesses and large corporations."

Developed for Microsoft by Broca Software Company, Typographer will retail for \$195.

Typographer Supports Unlimited Document Size.

Freeform

Placement of Text, and Other Professional Features

Unlike earlier, more limited document design programs, Typographer allows the user to produce documents of any length, limited only by disk space. The ability to flow text from one page to another is unlimited, and a critical capability for producers of lengthy documents such as proposals, books, and manuals.

Typographer's capacity for freeform placement of text and graphics provides total design flexibility. With layout unconstrained by columnar orientation, the user can employ indented, staggered, or overlapping regions of type.

Typographer also allows the user to preview each page or page spread on the screen with accurate scaling, to see exactly how it will look printed. This saves valuable time and reduces the necessity for draft printing. One of the most professional features of Typographer is its true com-

position approach to document processing. Instead of using word wrap, which can leave an excess of white space between words and "rivers" of white throughout a document, Typographer maintains true line count and adjusts the word spacing across the entire line. Similarly, hyphenation meets accepted composition standards.

Typographer also adjusts leading or interline spacing to compensate for interfering ascender and descender characters between lines. In addition, incremental tight/loose composition selection and automatic baseline jump capability has been incorporated into the program. The end result is a more readable document.

Typographer Includes a Copy Editor, Supports Leading Macintosh Programs, Interfaces with Typesetters

For last-minute sentence or paragraph changes, Typographer incorporates a copy editor with several desirable features, including global search and replace, block move, insert and delete,

and the ability to create headers, footers, and footnotes. Text entry, selection, and modification is also possible, allowing words or blocks of text to be added and highlighted with italics, bold face, or other character attributes.

Typographer allows the user to take text, both "rich" and

Continued on page 132

CALL TODAY

FOR YOUR

ADVANCED

COPY OF THE

NEWEST CATALOG

IN THE

INDUSTRY!

Call Toll Free
1 800 USA-FLEX
 In Illinois 1 (312)351-9700

7 to 7 Central Time

10:30 to 3:00 Saturdays

USA★FLEX

135 N. Brandon Drive Glendale Heights, IL 60139

Superlog4

by Lon Andrews

Not long ago I wrote that the use of the computer in the classroom wasn't what it should be. This program is one that a teacher can use to save some long hours of writing. SUPERLOG4 is a natural for lesson plans. A data base that provides blank pages. Over 32,000 pages just waiting to be filled with lesson plans. This

"notebook" files information in the manner that I can use it without having to force my data to fit someone else's idea of how it should be arranged.

To install the SUPERLOG4 program simply back it up to a TRSDOS 6.x systems disk (the program is not protected against backup). You will have to purge some of the unnecessary files from the system

disk before you make the backup. Make several copies of the systems disk after you get the program transferred.

Each page can hold 1,024 characters in "free form" or typed like I prepare my plans. You can search for specific words or multiple words and phrases. SUPERLOG4 contains an excellent text editor that allows you to prepare the "pages" as you desire and then file them for use later. Pages

can be edited by re-typing or cut and paste operations. A standard format can be created and then duplicated as many times as needed. In other words you can create a form to be filled in as you need as often as you need.

A page consists of a header line that identifies the name of the data base, the page number, date the page was created, date of the last update, time of the last update

and an indicator as to whether the page is write protected or not. 14 blank lines are available for use on each page. The right side of the page contains messages about errors, indicators concerning the status of the CAPS lock, WRAP around, CASSette motor on/off, PASTE buffer status, number of pages in the current file, free space left on the disk

Continued on page 134



HOUSE OF HELP

P.O. DRAWER 190
LYNN HAVEN, FLORIDA 32444
"ALL GOODS GUARANTEED"

* EVERYTHING IN DISKS AND BACK-UP AIDS *

DISKS - BULK, BOXED, FLIPPERS, MULTI-COLORS, BRAND-NAMES, NO-NAMES

Stocking: Elephants, Maxells, Athanas, Sentinels, Verbatims, Xidex
CALL US LAST - WE'LL BEAT YOUR BEST QUOTE ON EQUAL QUALITY DISKS
(Our prices start at less than a dollar a disk - for GOOD disks)

BACK UP AIDS: APPLE II SERIES - Copy II Plus 28.00, EDD - 48.00

IBM-Copy II PC-28.00, Copy Write-45.00/MACINTOSH-Copy II MAC-28.00

C64-Copy II 64-28.00, Copy Q-29.00, Di-Sector-34.00, CSM Aids-Call

Indus & Micro-Sci Drives - Call Nibble Notcher I - \$9.95

Monthly Special: IBM AT Disks - Maxell MD2-HDM's - \$46.90 per box

Monthly Special: Indus GT Disk Drive for the C64 - \$249.00

Modem owners: You can download our full line catalog and get free tech. assistance. Non-Modem owners can call Voice or write for free catalog/free technical assistance.

MasterCard/Visa/COD OK-Free Shipping over \$75.00, 2.50 under 75.00.

(904) 265-4225

CALL VOICE M-F 9AM TO 5PM OR CALL MDH BBS VIA MODEM ANY OTHER TIME

Typographer

Continued from page 131

unformatted, and graphics from a variety of popular programs. Typographer reads files directly from Microsoft Word, MacWrite, and MacPaint. Additionally, users can paste text and graphics from Microsoft Excel, Microsoft Chart, Microsoft File, Microsoft Multiplan, MacDraw, and MacDraft.

Once developed, page and document layouts can be saved for future use. This feature is especially time-saving for users that produce multiple documents that utilize the same formats, such as monthly sales reports, newsletters, manual chapters, or lengthy proposals.

For use in professional surroundings, Typographer supports Adobe's PostScript, the new page descriptor language used to drive the latest high quality printers and typesetters. Once the document has been designed, the file can be sent directly to any typesetter supporting PostScript, such as Allied Linotype's Linotron 101 Typesetter.

System Requirements, Pricing, Availability

Typographer runs on both the 128K and 512K Macintosh computers. Written entirely in assembly language, the program takes up only 90K of disk space, and is extremely fast. It features an extensive on-line help facility for users and sup-

ports both the Apple ImageWriter and LaserWriter printers. With the Apple LaserWriter, printed results are comparable to typeset text.

Typographer will be available through Microsoft retail outlets in October. It has a suggested retail price of \$195.

Microsoft Corporation manufactures and markets a wide range of software operating systems, languages, application programs, books, and hardware for the microcomputer marketplace. For more information, contact Microsoft Corporation at 10700 Northup Way, Box 97200, Bellevue, WA 98009 or call (206) 828-8080.

Mention that you read about it in the *Computer Shopper*. ●

MTBASIC

Multitasking BASIC Compiler

	Windowing	Multitasking	ROMable code	Recursive	Price	8087 support	Multi-line functions
MTBASIC	Y	Y	Y	Y	\$49.95	optional	Y
MBASIC	n	n	n	n	\$350.00	n	n
TURBO PASCAL	IBM only	n	n	Y	\$69.95	optional	Y
CBASIC2	n	n	n	n	\$600.00	n	n
BASCOM	n	n	n	n	\$395.00	n	n

MTBASIC, the multitasking Basic compiler, has everything you need!

Interactive Compiler

MTBASIC is an interactive compiler and a unique Basic language. MTBASIC is easy to use since you can write programs in an interactive environment and then compile them using only one command. MTBASIC is easy to learn because it is similar to many other Basics. The biggest advantage of using a compiled Basic is FAST PROGRAMS. With MTBASIC you get speed and advanced features.

Features

Multitasking
Windowing
Interactive

Compiles in seconds

Multi-line functions

No runtime fee

Handles interrupts

Fast native code

ROMable code

Formatted I/O

Assembly language calls

In-line machine code

Complete Package

The MTBASIC package includes all the necessary software to run in interpreter or compiler mode, an installation program (so any system can use windows), demonstration programs, and a comprehensive manual.

Ordering

MTBASIC is available for CP/M, MS-DOS, and PC-DOS systems for \$49.95. MTBASIC with 8087 support is available for MS-DOS for \$79.95. Shipping is \$3.50 (\$10.00 overseas). MD residents add 5% sales tax. MC, Visa, checks and COD accepted.



P.O. Box 2412 Columbia, MD 21045-1412

301/792-8096

MBASIC and BASCOM are trademarks of Microsoft Corp. TURBO PASCAL is a trademark of Borland International. CBASIC is a trademark of Digital Research.

Don't Be Fooled by the Competition Be Wise We Specialize — For You!

SPECIAL #1

CORONA
PORTABLE
• 256K • 2 Drives
• Monitor • Keyboard • DOS
\$1195

MAIL ORDER AND SAVE

DELIVERY AVAILABLE IN LA AREA
CALL (213) 970-0206

SPECIAL #2

IBM PC 256K
• Two 360K Drives
*** \$1525**
w/purchase of Monitor and Video Card

SYSTEMS**IBM**

PC 256K, 1 Drive \$1495
PC 256K, 2 Drives 1575
XT 256K, 1 Drive 1880
XT 256K, 1 Drive 1-10 MG 2280

COMPAQ

Portable (2) Drive 256K \$1875
Call on Desk Pro's

CORONA

Portable \$1195
Desk Top 1479

CALL ON

Zenith \$ave
Televideo \$ave
AT & T \$ave
NCR \$ave
Tandy \$ave

MODEMS**HAYES**

Micromodem IIE \$169
300 159
1200 389
1200B IBM Internal 359

PROMETHEUS

Promodem 1200 \$295
Promodem 1200A 309
Promodem 1200B 275

ANCHOR

Mark 12 \$218
Express 299

BIZCOMP

Call for Low Prices

PRINTERS**EPSON**

Call for Best Pricing

OKIDATA

182, 120 CPS \$230
83, 120 CPS 539
192, 160 CPS w/Roms 350
193, 160 CPS 585
84, 200 CPS 665
OKI-MATE 20, Color 229

TOSHIBA

P1351 Call
P1340 \$ave
P351 \$1029

STARMICRONICS

SG10/15 Call
SD10/15 and
SR10/15 \$ave

CITIZEN

MSP-10 \$269
MSP-15 389
MSP-20 419
MSP-25 569

DISKETTES

Call for quantity discounts

PERCISION COPY

SS 100 (Box of 10) \$17
DS 100 (Box of 10) 19

DYSAN

SS 100 (Box of 10) \$30
DS 100 (Box of 10) 34

D & D DISKS

1.2 MG High Density \$39
100 Piece Discounts

IBM EXTRAS

We Carry Everything For PC,
AT or XT

Name Brands or Generic

AST RESEARCH

SixPAK +, 64K w/Side Kick \$229
Reach w/Crosstalk 375

D & D MEMORY CARD

MF-100 + 64K same as
SixPAK + \$129

HERCULES

Color Card w/Printer Port \$139
Mono Graphics Card 305

D & D COLOR CARD

CC-102, w/Printer Port
Same as Hercules \$99
(Call on other D & D Cards)

GOODIES

IBM Printer Cable \$19
64K Ram Set of Nine Chips 8
256K Ram Set of Nine Chips 40
Power Supply 135 Watts 89
8087 Co Processor Call

MONITORS**PRINCETON
GRAPHICS**

Max 12E \$160
HX-9 429
HX-12 445
SR-12 w/Doubler Card 789

THOMSON

Color Monitor New
Monochrome Monitor Call

DRIVES

TEAC55B \$84
Mitsubishi 4851 84
Tandon TM 100-2 84
CDC 9409 84
Seimans DT542 84
Panasonic JU455 84
Shugart SA455 84

In quantity's of 2 or more

IBM COMPATIBLE**TEAC**

55A, 160K \$ 95
55B, 320K 89
55F, 720K 135

TANDON

TM100-2, 360K \$ 94
TM101-4, Quad Density 275

APPLE COMPATIBLE**D & D HALF HEIGHT**

525A For IIE and II+ \$109
525C for IIc 119

**APPLE
EXTRAS****MICROMAX**

Viewmax, 80 Column \$135
Viewmax 80E, 80 Column w/64K,
IIE 119

ORANGE MICRO

Grappler + \$ 85
Grappler + Buffered w/64K 155

MICRO SCI

80 Column Card 64K \$89

ATTENTION: DEALERS WE OFFER VOLUME DISCOUNTS! MAKE THAT CALL (213) 970-0206

SPECIAL #3**PARAGON**

• Accounting Software • Be
Your Own CP/A • No
Accounting Knowledge Required

Complete **\$995**

SPECIAL #4**384K MEMORY BOARD**

• Serial and Parallel Ports
• Clock/Gameport • Ram
disk/Printer spool Software

w/384K only **\$189**

SPECIAL #5**10 MG HARD DISK**

• Segate or Mitsubishi
w/IBM Controller

\$475

Call on 20-MG Drives

**FLAVOR OF THE
MONTH****IBM PC COMPATIBLE**

• Comp. Sys. • Two 360K
Drvs. • Clr. Mntr. • 256K • Clr.
Card w/Prnt. Port • DOS 2.1

\$995

**d&d Discount
Computers**

SELLING TO YOU SINCE 1978

MAIL ORDER:

13324 HAWTHORNE BLVD., SUITE 201
HAWTHORNE, CA 90250

ORDER DESK:

For Service and Satisfaction

(213) 970-0206

Ask About Phone Rebates

Hours: Monday — Saturday 8 am to 6 pm

WE CARRY TO MANY ITEMS TO LIST.
PLEASE CALL FOR A QUOTE ON ANY ITEM.



No Surcharge for Credit Cards

Terms: All merchandise new. We accept MC, Visa, Wire
Transfer, C.O.D. (call), Certified Check, P.O.'s from
qualified firms. Shipping: minimum 4.00 first 5 pounds. Tax:
California residents only add 6 1/2% sales tax. All returns
subject to 15% restock fee. Prices Subject To Change

Superlog4

Continued from page 132

and the number of free bytes in the PASTE buffer.

SUPERLOG4 will run on floppy or hard disk with TRSDOS 6.x and is compatible with LDOS 5.1. There are versions available for Models I, III, 4 and 4P. 64K is required and 128K is recommended. At present I am working with

SUPERLOG4 on the Supermem board with Ram-Drive. Too soon to tell if there are any bugs yet but it seems to work without any problem.

SUPERLOG runs in two modes--Foreground and Background. In the foreground mode it runs like any other program but in the background mode (requires 128K) SUPERLOG4 comes in to its own. In background the

program is loaded into one of the two 32K optional memory banks. Once installed it can be accessed from BASIC, TRSDOS or from another program (such as a word processor) that is being run in the other banks. This is an interrupt procedure activated by using (CTRL) (LEFT SHIFT) (RIGHT SHIFT).

What you end up with is a free format data base that can

be entered from a program that is running, data can be pulled out and transferred to the foreground program. This is an invaluable feature to me as I can set up plans on a permanent basis and transfer parts of them to the word processor for current use. The other uses of this feature are too many to even begin to list. Every user would have different applications that would fit this operation.

Each data base (notebook) that you set up will hold 32,767 records (pages) that will each hold up to 1,024 characters. When it is installed as a background program SUPERLOG4 can be accessed by using the CONTROL and both SHIFT keys simultaneously. BREAK returns you to SUPERLOG4. The unusual combination of word processor and data base manager provide features I've yet to see in anything else available. The CUT and PASTE feature is the key to moving data around in the data base and into other programs as needed. This feature is a little complicated but the documentation is clear and to the point. It won't take long to master the techniques. A directory of "/LOG" files is obtainable from within the program to facilitate the movement from file to file.

The Sound capability of the Model 4 is put to use in SUPERLOG4 to serve as a warning that you are trying to pass a margin, errors or as an indicator that you are passing from one part of the program to another. This feature can be turned off if you find it annoying.

How the text editor works is pretty well cut and dried to anyone that has worked with a word processor. For that reason it is sufficient to say that it is a good text editor that will fill your needs to develop the

notebook pages for your records. Be careful of the wrap around feature when you are editing written text. Material forced off the bottom of the page by inserting new text is lost if it hasn't been saved to disk. Pages can be write protected by using the (CTRL) (P) command to protect against accidental erasure.

Another feature I like is the CASStette control. A recorded tape that you are transcribing onto the notebook pages can be turned on and off as you desire by using (CTRL) (@). Listen to the tape, turn it off, type, turn it back on and listen to some more of the data.

The SEARCH command lets you search through the entire notebook for specific information desired. The search can be "case specific" or "case indifferent" (uppercase, lower case or either). A search might be for a single key word or character or for a phrase. There is also a wildcard capability that allows a search for combination or part of a word.

The documentation is 44 pages long in a 3-ring loose leaf 8 1/2 x 11 format. The folks that wrote the docs did an excellent job. They are well written, short and to the point. Enough is given to the user up front to get you up and running. Experience with SUPERLOG4 is the best teacher.

This is one program that I highly recommend. I have yet to find a fault in its operation and it is one heck of an addition to any software library.

SUPERLOG4 (4 & 4P)--\$119.95
SUPERLOG3 (I, III, 4 & 4P)--\$119.95
KSOFT Inc.
318 Lakeside Drive
Brandon, MS 39042
(601) 992-2239

NOW YOU DON'T HAVE TO SEARCH YOUR MIND OR YOUR THESAURUS FOR THE RIGHT WORD

Now you can find the right word for your thought without taking your hands off the keyboard or your eyes off the screen. Just place your cursor on a word you want a better word for, pop up a window showing a list of alternatives, pick the one that works the best--and the new word replaces your old one automatically.

Introducing Word Finder™ a new computerized thesaurus with 90,000 synonyms for over 9,000 key words. No more looking it up, deleting and retyping.

Word Finder integrates itself within your word processor to function as you type or edit. Use it to clarify your meaning and improve your writing. It even maintains capitalization from old word to new.

Put Word Finder in your WordStar (3.0 to 3.31), WordStar 2000 Multimate, Word Perfect, Pfs:Write, Microsoft Word, IBM Writing Assistant or Easy Writer II now. It's fast, easy to install and operate, and it's not copy protected.

Do It Now For Only \$79.95 And Save A Bundle Off The Regular \$124.95 Price.

**WORD
FINDER™**
SYNONYM FINDER™

YES, I want the Word Finder. My check is enclosed for _____ including \$2.50 shipping (and NYS sales tax if applicable).

Charge my VISA/MC acct. # _____ Expires _____/_____/_____

Name _____ Phone _____

Company _____

Address _____

City _____ State _____ Zip _____

Word Processor _____ Computer/Op System _____

Writing Consultants™
A Division of Microlytics, Inc.™

Techniplex Center, Suite 439, East Rochester, NY 14445 • Orders only: 800-828-6293
In NYS or for info: 716-377-0130 • Dealers and distributors please call or write.

Hello, Gemini and Delta
Printer Users:

**Do You Want
NLQ Printing?
(Near Letter Quality)**

We are offering to you an
easy-to-install kit for your
Printer:

PRICE \$57.50

To Order: Call or Write
ESP CORPORATION
7900 N. Tamiami Trail
Sarasota, FL 34243
(813) 355-6797

Personal Check and COD's
accepted — No Credit Cards
4-6 weeks delivery
Dealer Inquiries Invited

What the world really needs is a 69 cent Double Sided, Double Density Diskette with a LIFETIME WARRANTY!

And DISK WORLD! has it.

Introducing Super Star Diskettes: the high quality diskette with the lowest price and the best LIFETIME WARRANTY!

In the course of selling more than a million diskettes every month, we've learned something: higher prices don't necessarily mean higher quality.

In fact, we've found that a good diskette manufacturer simply manufactures a good diskette...no matter what they charge for it. (By way of example, consider that none of the brands that we carry has a return rate of greater than 1/1,000th of 1 percent!)

In other words, when people buy a more expensive diskette, they aren't necessarily buying higher quality.

The extra money might be going toward flashier advertising, snazzier packaging or simply higher profits. But the extra money in a higher price isn't buying better quality.

All of the good manufacturers put out a good diskette. Period.

How to cut diskette prices ...without cutting quality.

Now this discovery posed a dilemma: how to cut the price of diskettes without lowering the quality.

There are about 85 companies claiming to be "diskette" manufacturers.

Trouble is, most of them aren't manufacturers.

Rather they are fabricators or marketers, taking other company's components, possibly doing one or more steps of the processing themselves and pasting their labels on the finished product.

The new Eastman Kodak diskettes, for example, are one of these. So are IBM 5¼" diskettes. Same for DYSAN, Polaroid and many, many other familiar diskette brand names. Each of these diskettes is manufactured in whole or in part by another company!

So, we decided to act just like the big guys. That's how we would cut diskette prices...without lowering the quality.

We would go out and find smaller companies to manufacture a diskette to our specifications...specifications which are higher than most...and simply create our own "name brand" diskette.

Name brand diskettes that offered high quality at low prices.



Super Star diskettes are sold in multiples of 50 only. Diskettes are shipped with white Tyvec sleeves, reinforced hubs, user ID labels and write-protect tabs.

Boy, did we get lucky. Our Super Star Diskettes are the same ones you've been using for years...without knowing it.

In our search for the low priced, high quality diskette of our dreams, we found something even more interesting.

We found that there are several manufacturers who don't give a hoot about the consumer market for their diskettes. They don't spend millions of dollars in advertising trying to get you, the computer user, to use their diskettes.

Instead, they concentrate their efforts on turning out the highest quality diskettes they can...because they sell them to the software publishers, computer manufacturers and other folks who (in turn) put their name on them...and sell them for much higher prices to you!

After all, when a software publisher or computer manufacturer or diskette marketer puts their name on a diskette, they want it to work time after time, everytime. (Especially software publishers who have the nasty habit of copy-protecting their originals!)

Super Star Diskettes. You already know how good they are. Now you can buy them...cheap.

Well, that's the story.

Super Star diskettes don't roll off the boat from Pago-Pago or emerge from a basement plant just east of Nowhere.

Super Star diskettes have been around for years...and you've used them for years as copy-protected software originals, unprotected originals. Sometimes, depending on which computer you own, the system master may have been on a Super Star diskette. And maybe more than once, you've bought a box or two or more of Super Star diskettes without knowing it. They just had some "big" company's name on them.

Super Star Diskettes are good. So good that a lot of major software publishers, computer manufacturers and other diskette marketers buy them in the tens or hundreds of thousands.

We buy them in the millions.

And then we sell them to you.

Cheap.

**When every little bit counts,
it's Super Star Diskettes.**

You've used them a hundred times...under different names.

Now, you can buy the real McCoy, the same diskette that major software publishers, computer manufacturers and diskette marketers buy...and call their own.

We simply charge less.

Super Special!

Order 50 Super Star Diskettes and we'll be happy to sell you an Amaray Media-Mate 50 for only \$8.75, shipping included...a lot less than the suggested retail price of \$15.95.



Regular DISK WORLD! price: \$9.69 ea.
+ \$2.00 Shpng.

DISKETTE STORAGE CASES

DISK CADDIES

The original flip-up holder for 10 5¼" diskettes. Beige or Grey only.

\$1.65 ea. + .20 Shpng.

DISKETTE 70 STORAGE

Dust-free storage for 70 5¼" diskettes. Six dividers included. An excellent value.

\$9.95 ea. + \$3.00 Shpng.



HOURS:

Human: 8AM-6PM Central Time, Monday through Friday
Answering Machine: 6PM-8AM, All Times
MCI MAIL: 24 hours a day.

HOW TO ORDER:

ORDERS ONLY:
1-800-621-6827
(In Illinois: 1-312-256-7140)

INQUIRIES:
1-312-256-7140

FOR FASTEST SERVICE, USE NO-COST MCI MAIL: Our address is DISKORDER. It's a FREE MCI MAIL letter. No charge to you. (Situation permitting, we'll ship these orders in 24 hours or less.)

SHIPPING: 5¼" & 3½" DISKETTES—Add \$3.00 per each 100 or fewer diskettes. **OTHER ITEMS:** Add shipping charges as shown in addition to other shipping charges. **PAYMENT:** VISA, MASTERCARD and Prepaid orders accepted. **COD ORDERS:** Add additional \$5.00 special handling charge. **APD, FPO, AK, HI & PR ORDERS:** Include shipping charges as shown and additional 5% of total order amount to cover PAL and insurance. We ship only to United States addresses, except for those listed above. **TAXES:** Illinois residents, add 7% sales tax.

MINIMUM ORDER: \$35.00.

The Super Star LIFETIME WARRANTY!

Super Star Diskettes are unconditionally warranted against defects in original material and workmanship so long as owned by the original purchaser. Returns are simple: just send the defective diskettes with proof of purchase, postage-paid by you with a short explanation of the problem, and we'll send you the replacements. (Incidentally, coffee stained diskettes and diskettes with staples driven through them don't qualify as "defective".)

**WE WILL MEET OR BEAT ANY NATIONALLY
ADVERTISED PRICE
ON THE SAME PRODUCTS AND QUANTITIES
SUBJECT TO THE SAME TERMS AND CONDITIONS.**

DISK WORLD!, INC.

629 Green Bay Road
Wilmette, Illinois 60091

4164 49¢ ea. 41256 \$2.95 ea.

STATIC RAMS

2101	256x4	(450ns)	1.95
5101	256x4	(450ns)(CMOS)	3.95
2102L-4	1024x1	(450ns)(LP)	.99
2102L-2	1024x1	(250ns)(LP)	1.45
2112	256x4	(450ns)	2.99
2114	1024x4	(450ns)	.99
2114L-4	1024x4	(450ns)(LP)	1.09
2114L-2	1024x4	(200ns)(LP)	1.49
2114L-15	1024x4	(150ns)(LP)	1.95
TMS4044-4	4096x1	(450ns)	1.95
TMM2016-150	2048x8	(150ns)	1.69
TMM2016-100	2048x8	(100ns)	2.49
HM6116-4	2048x8	(200ns)(CMOS)	1.79
HM6116-3	2048x8	(150ns)(CMOS)	1.89
HM6116LP-4	2048x8	(200ns)(CMOS)(LP)	1.89
HM6116LP-3	2048x8	(150ns)(CMOS)(LP)	1.99
HM6116LP-2	2048x8	(120ns)(CMOS)(LP)	2.95
HM6264P-15	8192x8	(150ns)(CMOS)	4.75
HM6264LP-15	8192x8	(150ns)(CMOS)(LP)	4.95
HM6264LP-12	8192x8	(120ns)(CMOS)(LP)	5.95

LP=Low power

DYNAMIC RAMS

4116-250	16384x1	(250ns)	.49
4116-200	16384x1	(200ns)	.69
4116-150	16384x1	(150ns)	.89
4116-120	16384x1	(120ns)	1.49
MK4332	32768x1	(200ns)	6.95
4164-200	65536x1	(200ns)(5V)	.49
4164-150	65536x1	(150ns)(5V)	.69
4164-120	65536x1	(120ns)(5V)	1.95
MCM6665	65536x1	(200ns)(5V)	1.95
TMS4164	65536x1	(150ns)(5V)	1.95
4164-REFRESH	65536x1	(150ns)(5V)(REFRESH)	2.95
TMS4416	16384x4	(150ns)(5V)	4.95
41128-150	131072x1	(150ns)(5V)	5.95
41256-200	262144x1	(200ns)(5V)	2.95
41256-150	262144x1	(150ns)(5V)	2.95

5V=Single 5 Volt Supply

REFRESH=Pin 1 Refresh

★★★★HIGH-TECH★★★★

NEC V20 μ PD70108 \$20⁹⁵

REPLACES 8088 TO SPEED UP IBM PC 10-40%

- * HIGH-SPEED ADDRESS CALCULATION IN HARDWARE
- * PIN COMPATIBLE WITH 8088
- * SUPERSET OF 8086/8088 INSTRUCTION SET
- * LOW POWER CMOS

★★★★SPOTLIGHT★★★★

- * COMPUTER MANAGED INVENTORY - VIRTUALLY NO BACK ORDERS!
- * VERY COMPETITIVE PRICES
- * FRIENDLY STAFF
- * FAST SERVICE - MOST ORDERS SHIPPED WITHIN 24 HOURS!
- * WE ACCEPT VISA AND MASTERCARD



EPROMS

2708	1024x8	(450ns)	3.95
2716-6	2048x8	(650ns)	2.29
2716	2048x8	(450ns)(5V)	2.49
2716-1	2048x8	(350ns)(5V)	3.95
TMS2532	4096x8	(450ns)(5V)	3.95
2732	4096x8	(450ns)(5V)	2.49
2732A	4096x8	(250ns)(5V)(21V PGM)	2.69
2732A-2	4096x8	(200ns)(5V)(21V PGM)	4.95
27C64	8192x8	(250ns)(5V)(CMOS)	7.95
2764	8192x8	(450ns)(5V)	2.29
2764-250	8192x8	(250ns)(5V)	2.49
2764-200	8192x8	(200ns)(5V)	4.95
TMS2564	8192x8	(450ns)(5V)	8.95
MCM68766	8192x8	(350ns)(5V)(24 PIN)	17.95
27128	16384x8	(250ns)(5V)	3.49
27C256	32768x8	(250ns)(5V)(CMOS)	15.95
27256	32768x8	(250ns)(5V)	9.95

5V=Single 5 Volt Supply

21V PGM=Program at 21 Volts

SPECTRONICS CORPORATION EPROM ERASERS



Model	Timer	Capacity Chip	Intensity (uW/Cm ²)	Unit Price
PE-14	NO	9	8,000	\$83.00
PE-14T	YES	9	8,000	\$119.00
PE-24T	YES	12	9,600	\$175.00

8000

8035	1.95
8039	2.95
8080	2.95
8085	2.95
8087-2	139.95
8087	109.00
8088	7.95
8088-2	9.95
8155	2.95
8155-2	3.95
8748	9.95
8755	19.95
80286	129.95
80287	185.00

6500

6502	2.79
65C02 (CMOS)	12.95
6507	9.95
6520	1.95
6522	4.95
6526	26.95
6532	6.95
6545	6.95
6551	5.95
6561	19.95
6581	34.95

2.0 MHz

6502A	2.95
6520A	2.95
6522A	5.95
6532A	11.95
6545A	7.95
6551A	6.95

3.0 MHz

6502B	6.95
-------	------

8200

8203	34.95
8205	3.29
8212	1.49
8216	1.49
8224	2.25
8237	4.95
8237-5	6.95
8250	6.95
8251	1.95
8251A	2.49
8253	1.95
8253-5	2.49
8255	1.95
8255-5	2.49
8259	2.49
8259-5	2.95
8272	4.95
8279	2.95
8279-5	3.49
8282	3.95
8284	2.95
8286	3.95
8288	4.95

Z-80

Z80-CPU 2.5 MHz 1.79

4.0 MHz

Z80A-CPU	1.89
Z80A-CTC	1.95
Z80A-DART	5.95
Z80A-DMA	5.95
Z80A-PIO	1.95
Z80A-SIO/0	5.95
Z80A-SIO/1	5.95
Z80A-SIO/2	5.95

6.0 MHz

Z80B-CPU	4.95
Z80B-CTC	8.95
Z80B-PIO	8.95
Z80B-DART	14.95
Z80B-SIO/0	12.95
Z80B-SIO/2	12.95
Z8671 ZILOG	19.95

2.0 MHz

68B00	4.95
68B02	5.95
68B09E	7.95
68B09	7.95
68B21	4.95
68B45	8.95
68B50	3.95
68B54	7.95

CLOCK CIRCUITS

MM5369	1.95
MM5369-EST	1.95
MM58167	12.95
MM58174	11.95
MSM5832	2.95

CRT CONTROLLERS

6845	4.95
68B45	8.95
6847	11.95
HD46505SP	6.95
MC1372	2.95
8275	26.95
7220	19.95
CRT5027	12.95
CRT5037	9.95
TMS9918A	19.95

DISK CONTROLLERS

1771	4.95
1791	9.95
1793	9.95
1795	12.95
1797	12.95
2791	19.95
2793	19.95
2797	29.95
6843	19.95
8272	4.95
UPD765	12.95
MB8876	12.95
MB8877	12.95
1691	6.95
2143	6.95

BIT RATE GENERATORS

MC14411	9.95
BR1941	4.95
4702	9.95
COM8116	8.95
MM5307	4.95

UARTS

AY5-1013	3.95
AY3-1015	4.95
TR1602	3.95
2651	4.95
IM6402	6.95
IM6403	9.95
INS8250	6.95

SOUND CHIPS

76477	3.95
76489	8.95
SSI-263	39.95
AY3-8910	12.95
AY3-8912	12.95
SP1000	39.00

CRYSTALS

32.768 KHz	.95
1.0 MHz	2.95
1.8432	2.95
2.0	1.95
2.097152	1.95
2.4576	1.95
3.2768	1.95
3.579545	1.95
4.0	1.95
4.032	1.95
5.0	1.95
5.0688	1.95
6.0	1.95
6.144	1.95
6.5536	1.95
8.0	1.95
10.0	1.95
10.738635	1.95
12.0	1.95
14.31818	1.95
15.0	1.95
16.0	1.95
17.430	1.95
18.0	1.95
18.432	1.95
20.0	1.95
22.1184	1.95
24.0	1.95
32.0	1.95

CRYSTAL OSCILLATORS

1.0MHz	5.95
1.8432	5.95
2.0	5.95
2.4576	5.95
2.5	4.95
4.0	4.95
5.0688	4.95
6.0	4.95
6.144	4.95
8.0	4.95
10.0	4.95
12.0	4.95
12.480	4.95
15.0	4.95
16.0	4.95
18.432	4.95
20.0	4.95
24.0	4.95

MISC.

TMS99531	9.95
TMS99532	19.95
ULN2003	.79
3242	7.95
3341	4.95
MC3470	1.95
MC3480	8.95
MC3487	2.95
11C90	13.95
2513-001 UP	6.95
AY5-2376	11.95
AY5-3600 PRO	11.95

HIGH SPEED CMOS

A new family of high speed CMOS logic featuring the speed of low power Schottky (8ns typical gate propagation delay), combined with the advantages of CMOS: very low power consumption, superior noise immunity, and improved output drive.

74HC00

74HC: Operate at CMOS logic levels and are ideal for new, all-CMOS designs.

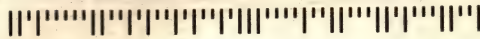
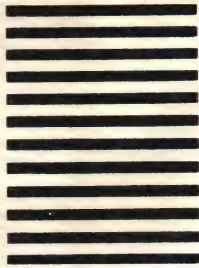
74HC00	.59	74HC148	1.19
74HC02	.59	74HC151	.89
74HC04	.59	74HC154	2.49
74HC08	.59	74HC157	.89
74HC10	.59	74HC158	.95
74HC14	.79	74HC163	1.15
74HC20	.59	74HC175	.99
74HC27	.59	74HC240	1.89
74HC30	.59	74HC244	1.89
74HC32	.69	74HC245	1.89
74HC51	.59	74HC257	.85
74HC74	.75	74HC259	1.39
74HC85	.35	74HC273	1.89
74HC86	.69	74HC299	4.99
74HC93	1.19	74HC368	.99
74HC107	.79	74HC373	2.29
74HC109	.79	74HC374	2.29
74HC112	.79	74HC390	1.39
74HC125	1.19	74HC393	1.39
74HC132	1.19	74HC4017	1.99
74HC133	.69	74HC4020	1.39
74HC138	.99	74HC4049	.89
74HC139	.99	74HC4050	.89

74HCT00

74HCT: Direct, drop-in replacements for LS TTL and can be intermixed with 74LS in the same circuit.

74HCT00	.69	74HCT166	3.05
74HCT02	.69	74HCT174	1.09
74HCT04	.69	74HCT193	1.39
74HCT08	.69	74HCT194	1.19
74HCT10	.69	74HCT240	2.19
74HCT11	.69	74HCT241	2.19
74HCT27	.69	74HCT244	2.19
74HCT30	.69	74HCT245	2.19
74HCT32	.79	74HCT257	.99
74HCT74	.85	74HCT259	1.59
74HCT75	.95	74HCT273	2.09
74HCT138	1.15	74HCT367	1.09
74HCT139	1.15	74HCT373	2.49
74HCT154	2.99	74HCT374	2.49
74HCT157	.99	74HCT393	1.59
74HCT158	.99	74HCT4017	2.19
74HCT161	1.29	74HCT4040	1.59
74HCT164	1.39	74HCT4060	1.49

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 105 TITUSVILLE, FLORIDA 32781

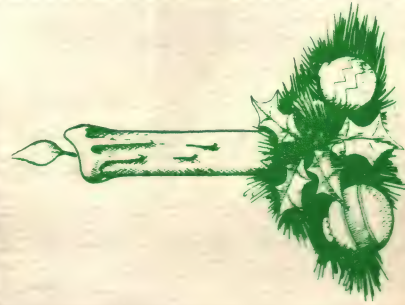
POSTAGE WILL BE PAID BY ADDRESSEE

COMPUTER SHOPPER™

P.O. Box 1419
Titusville, FL 32781-9990

A Great Gift
for your favorite person
because . . .

- with its great bargains, **COMPUTER SHOPPER** is the **BEST** gift you can give to your friend or yourself
- we make it easy to order
- you can give now at our special holiday rates, but pay after January 1, 1986
- with your first gift (or your own subscription) you save \$4.03* off our regular subscription price, and with each additional gift or your own renewal, you save \$5.03* off the regular subscription price.



*offer valid in USA only. Canadian orders (first class) add \$30 per subscription; other Foreign (surface mail) add \$5 per subscription.

Enter your subscription
or Give

COMPUTER SHOPPER™

for Christmas at special
holiday rates!

\$13⁹⁷ First 1-year gift subscription or your own subscription

\$12⁹⁷ Each additional gift subscription (or your own renewal) when entered with one at the \$13.97 rate.

Happy Holidays! A
gift subscription to
Computer Shopper
has been
entered in
your name.



from

RUSH!
Subscription
Enclosed

PLACE
STAMP
HERE



(detach gift card here) →
gift!

COMPUTER SHOPPER™

*Use this greeting card
to announce yours*

Fill-in information below. Detach here, and enclose in envelope.

Please enter a one year (12 issues) gift subscription to **COMPUTER SHOPPER** for the person(s) listed below:

NAME _____
ADDRESS _____
CITY _____
STATE _____ ZIP _____

(Use attached gift card for above gift.)

NAME _____
ADDRESS _____
CITY _____
STATE _____ ZIP _____

(We'll send you an extra gift card by return
mail for the above gift.)

MY NAME _____
ADDRESS _____
CITY _____
STATE _____ ZIP _____

☐ I want to subscribe. Start my own personal
subscription with the next available issue.

Please use a separate sheet of paper to enter additional gifts.

We'll send you extra gift cards by return mail for *all added gifts*. X-101

(detach here)

**COMPUTER
SHOPPER™**

SPECIAL HOLIDAY RATES

Summarize your order below:

- ☐ Enter my subscription/renewal plus gift(s).
☐ Enter my **COMPUTER SHOPPER** gifts only.
☐ Enter my ☐ new subscription or ☐ renewal only.

Method of Payment:

- ☐ Payment enclosed (send check or money order)
☐ Bill me
☐ Charge to VISA/MC Acct. # _____

Exp. Date _____ Signature _____

\$13⁹⁷ First one year gift subscription or your subscription.

\$12⁹⁷ Each additional one year gift subscription (or your renewal)
when entered with one at the \$13.97 rate.

Special prices valid in USA only. Canadian orders (first class) add \$30 per subscription; Foreign orders (surface) add \$5 per subscription.

JDR Microdevices

1224 South Bascom Avenue, San Jose, CA 95128
(408) 995-5430 • FAX (408) 275-8415 • Telex 171-110

CMOS

4001	.19	14419	4.95
4011	.19	14433	14.95
4012	.25	4503	.49
4013	.35	4511	.69
4015	.29	4516	.79
4016	.29	4518	.85
4017	.49	4522	.79
4018	.69	4526	.79
4020	.59	4527	1.95
4021	.69	4528	.79
4024	.49	4529	2.95
4025	.25	4532	1.95
4027	.39	4538	.95
4028	.65	4541	1.29
4035	.69	4553	5.79
4040	.69	4585	.75
4041	.75	4702	12.95
4042	.59	74C00	.29
4043	.85	74C14	.59
4044	.69	74C74	.59
4045	1.98	74C83	1.95
4046	.69	74C85	1.49
4047	.69	74C95	.99
4049	.29	74C150	5.75
4050	.29	74C151	2.25
4051	.69	74C161	.99
4052	.69	74C163	.99
4053	.69	74C164	1.39
4056	2.19	74C192	1.49
4060	.69	74C193	1.49
4066	.29	74C221	1.75
4069	.19	74C240	1.89
4076	.59	74C244	1.89
4077	.29	74C374	1.99
4081	.22	74C905	10.95
4085	.79	74C911	8.95
4086	.89	74C917	8.95
4093	.49	74C922	4.49
4094	2.49	74C923	4.95
14411	9.95	74C926	7.95
14412	6.95	80C97	.95

7400/9000

7400	.19	74147	2.49
7402	.19	74148	1.20
7404	.19	74150	1.35
7406	.29	74151	.55
7407	.29	74153	.55
7408	.24	74154	1.49
7410	.19	74155	.75
7411	.25	74157	.55
7414	.49	74159	1.65
7416	.25	74161	.69
7417	.25	74163	.69
7420	.19	74164	.85
7423	.29	74165	.85
7430	.19	74166	1.00
7432	.29	74175	.89
7438	.29	74177	.75
7442	.49	74178	1.15
7445	.69	74181	2.25
7447	.89	74182	.75
7470	.35	74184	2.00
7473	.34	74191	1.15
7474	.33	74192	.79
7475	.45	74194	.85
7476	.35	74196	.79
7483	.50	74197	.75
7485	.59	74199	1.35
7486	.35	74221	1.35
7489	2.15	74246	1.35
7490	.39	74247	1.25
7492	.50	74248	1.85
7493	.35	74249	1.95
7495	.55	74251	.75
7497	2.75	74265	1.35
74100	2.29	74273	1.95
74121	.29	74278	3.11
74123	.49	74367	.65
74125	.45	74368	.65
74141	.65	9368	3.95
74143	5.95	9602	1.50
74144	2.95	9637	2.95
74145	.60	96502	1.95

74S00

74S00	.29	74S163	1.29
74S02	.29	74S168	3.95
74S03	.29	74S174	.79
74S04	.29	74S175	.79
74S05	.29	74S188	1.95
74S08	.35	74S189	1.95
74S10	.29	74S195	1.49
74S15	.35	74S196	1.49
74S30	.29	74S197	1.49
74S32	.35	74S226	3.99
74S37	.69	74S240	1.49
74S38	.69	74S241	1.49
74S74	.49	74S244	1.49
74S85	.95	74S257	.79
74S86	.35	74S253	.79
74S112	.50	74S258	.95
74S124	2.75	74S280	1.95
74S138	.79	74S287	1.69
74S140	.55	74S288	1.69
74S151	.79	74S299	2.95
74S153	.79	74S373	1.69
74S157	.79	74S374	1.69
74S158	.95	74S471	4.95
74S161	1.29	74S571	2.95

VOLTAGE REGULATORS

TO-220 CASE			
7805T	.49	7905T	.59
7808T	.49	7908T	.59
7812T	.49	7912T	.59
7815T	.49	7915T	.59
TO-3 CASE			
7805K	1.39	7905K	1.49
7812K	1.39	7912K	1.49
TO-92 CASE			
78L05	.49	79L05	.69
78L12	.49	79L12	.69
OTHER VOLTAGE REGS			
LM323K 5V 3A	TO-3	4.79	
LM338K Adj 5A	TO-3	3.95	
78H05K 5V 5A	TO-3	7.95	
78H12K 12V 5A	TO-3	8.95	
78P05K 5V 10A	TO-3	14.95	

LINEAR

TL066	.99	LM733	.98
TL071	.69	LM741	.29
TL072	1.09	LM747	.69
TL074	1.95	LM748	.59
TL081	.59	MC1330	1.69
TL082	.99	MC1350	1.19
TL084	1.49	MC1372	6.95
LM301	.34	LM1414	1.59
LM309K	1.25	LM1458	.49
LM311	.59	LM1488	.49
LM311H	.89	LM1489	.49
LM317K	3.49	LM1496	.85
LM317T	.95	LM1812	8.25
LM318	1.49	LM1889	1.95
LM319	1.25	ULN2003	.79
LM320 see 7900		XR2206	3.75
LM322	1.65	XR2211	2.95
LM323K	4.79	XR2240	1.95
LM324	.49	MPQ2907	1.95
LM331	3.95	LM2917	1.95
LM334	1.19	CA3046	.89
LM335	1.40	CA3081	.99
LM336	1.75	CA3082	.99
LM337K	3.95	CA3086	.80
LM338K	3.95	CA3089	1.95
LM339	.59	CA3130E	.99
LM340 see 7800		CA3146	1.29
LM350T	4.60	CA3160	1.19
LF353	.59	MC3470	1.95
LF356	.99	MC3480	8.95
LF357	.99	MC3487	2.95
LM358	.59	LM3900	.49
LM380	.89	LM3909	.98
LM383	.35	LM3911	2.25
LM386	.89	LM3914	2.39
LM393	.45	MC4024	3.49
LM394H	4.60	MC4044	3.99
TL494	4.20	RC4136	1.25
TL497	3.25	RC4558	.69
NE555	.29	LM13600	1.49
NE556	.49	75107	1.49
NE558	1.29	75110	1.95
NE564	1.95	75150	1.95
LM565	.95	75154	1.95
LM566	1.49	75188	1.25
LM567	.79	75189	1.25
NE570	2.95	75451	.39
NE590	2.50	75452	.39
NE592	.98	75453	.39
LM710	.75	75477	1.29
LM723	.49	75492	.79
H=TO-5 CAN, K=TO-3, T=TO-220			

IC SOCKETS

8 PIN ST	1.99	100
14 PIN ST	.13	.11
16 PIN ST	.15	.12
18 PIN ST	.17	.13
20 PIN ST	.20	.18
22 PIN ST	.29	.27
24 PIN ST	.30	.27
28 PIN ST	.40	.32
40 PIN ST	.49	.39
64 PIN ST	4.25	CALL
ST-SOLDER TAIL		
8 PIN WW	.59	.49
14 PIN WW	.69	.52
16 PIN WW	.69	.58
18 PIN WW	.99	.90
20 PIN WW	1.09	.98
22 PIN WW	1.39	1.28
24 PIN WW	1.49	1.35
28 PIN WW	1.69	1.49
40 PIN WW	1.99	1.80
WW-WIREWRAP		
16 PIN ZIF	4.95	CALL
24 PIN ZIF	5.95	CALL
28 PIN ZIF	6.95	CALL
40 PIN ZIF	9.95	CALL
ZIF-TEXT TOOL (ZERO INSERTION FORCE)		

DATA ACQ INTERFACE

ADC0800	15.55	8T26	1.29
ADC0804	3.49	8T28	1.29
ADC0809	4.49	8T95	.89
ADC0816	14.95	8T96	.89
ADC0817	9.95	8T97	.59
ADC0831	8.95	8T98	.89
DAC0800	4.49	DM8131	2.95
DAC0806	1.95	DP8304	2.29
DAC0808	2.95	DS8833	2.25
DAC1020	8.25	DS8835	1.99
DAC1022	5.95	DS8836	.99
MC1408L8	2.95	DS8837	1.65

EDGE CARD CONNECTORS

100 PIN ST	S-100	.125	3.95
100 PIN WW	S-100	.125	4.95
62 PIN ST	IBM PC	.100	1.95
50 PIN ST	APPLE	.100	2.95
44 PIN ST	STD	.156	1.95
44 PIN WW	STD	.156	4.95

36 PIN CENTRONICS

MALE			
IDCEN36	RIBBON CABLE		6.95
CEN36	SOLDER CUP		4.95
CEN36PC	RT ANGLE PC MOUNT		4.95
FEMALE			
IDCEN36/F	RIBBON CABLE		7.95

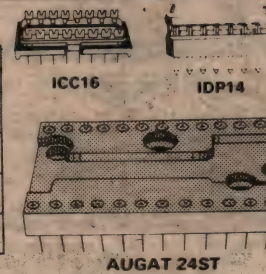
INTERSIL

ICL7106	9.95
ICL7107	12.95
ICL7660	2.95
ICL8038	4.95
ICM7207A	5.95
ICM7208	15.95

DIP CONNECTORS

DESCRIPTION	ORDER BY	CONTACTS								
		8	14	16	18	20	22	24	28	40
HIGH RELIABILITY TOOLED ST IC SOCKETS	AUGATxxST	.62	.79	.89	1.09	1.29	1.39	1.49	1.69	2.49
HIGH RELIABILITY TOOLED WW IC SOCKETS	AUGATxxWW	1.30	1.80	2.10	2.40	2.50	2.90	3.15	3.70	5.40
COMPONENT CARRIES (DIP HEADERS)	ICCxx	.49	.59	.69	.99	.99	.99	.99	1.09	1.49
RIBBON CABLE DIP PLUGS (IDC)	IDPxx	---	.95	.95	---	---	---	1.75	---	2.95

FOR ORDERING INSTRUCTIONS SEE D-SUBMINIATURE BELOW



DIODES/OPTO/TRANSISTORS

1N751	.25	4N26	.69
1N759	.25	4N27	.69
1N4148	25/1.00	4N28	.69
1N4004	10/1.00	4N33	.89
1N5402	.25	4N37	1.19
KBP04	.55	MCT-2	.59
KBU8A	.95	MCT-6	1.29
MDA990-2	.35	TIL-111	.99
N2222	.25	2N3906	.10
PN2222	.10	2N4401	.25
2N2905	.50	2N4402	.25
2N2907	.25	2N4403	.25
2N3055	.79	2N6045	1.75
2N3904	.10	TIP31	.49

D-SUBMINIATURE

DESCRIPTION		ORDER BY	CONTACTS						
			9	15	19	25	37	50	
SOLDER CUP	MALE	DBxxP	.82	.90	1.25	1.25	1.80	3.48	
	FEMALE	DBxxS	.95	1.15	1.50	1.50	2.35	4.32	
RIGHT ANGLE PC SOLDER	MALE	DBxxPR	1.20	1.49	---	1.95	2.65	---	
	FEMALE	DBxxSR	1.25	1.55	---	2.00	2.79	---	
WIRE WRAP	MALE	DBxxPWW	1.69	2.56	---	3.89	5.60	---	
	FEMALE	DBxxSWW	2.76	4.27	---	6.84	9.95	---	
IDC RIBBON CABLE	MALE	IDBxxP	2.70	2.95	---	3.98	5.70	---	
	FEMALE	IDBxxS	2.92	3.20	---	4.33	6.76	---	
HOODS	METAL	MHOODxx	1.25	1.25	1.30	1.30	---	---	
	GREY	HOODxx	.65	.65	---	.65	.75	.95	

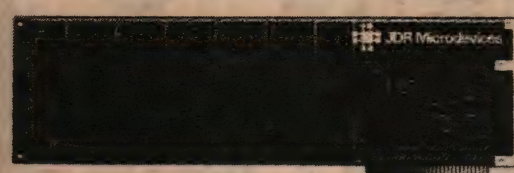
ORDER TOLL FREE

800-538-5000

800-662-6279 (CA)

WIRE WRAP PROTOTYPE CARDS

FR-4 EPOXY GLASS LAMINATE
WITH GOLD-PLATED EDGE-CARD FINGERS



IBM-PR2

IBM

BOTH CARDS HAVE SILK SCREENED LEGENDS
AND INCLUDES MOUNTING BRACKET

IBM-PR1 WITH +5V AND GROUND PLANE . . . \$27.95
IBM-PR2 AS ABOVE WITH DECODING LAYOUT . . . \$29.95

S-100

P100-1 BARE - NO FOIL PADS . . . \$15.15
P100-2 HORIZONTAL BUS . . . \$21.80
P100-3 VERTICAL BUS . . . \$21.80
P100-4 SINGLE FOIL PADS PER HOLE . . . \$22.75

APPLE

P500-1 BARE - NO FOIL PADS . . . \$15.15
P500-3 HORIZONTAL BUS . . . \$22.75
P500-4 SINGLE FOIL PADS PER HOLE . . . \$21.80
7060-45 FOR APPLE IIe AUX SLOT . . . \$30.00

PAGE WIRE WRAP WIRE

PRECUT ASSORTMENT
IN ASSORTED COLORS \$27.50

100ea: 5.5", 6.0", 6.5", 7.0"
250ea: 2.5", 4.5", 5.0"
500ea: 3.0", 3.5", 4.0"

SPOOLS

100 feet \$4.30 250 feet \$7.25
500 feet \$13.25 1000 feet \$21.95

Please specify color:
Blue, Black, Yellow or Red

EMI FILTER

\$4.95

* MANUFACTURED
BY CORCOM
* LOW COST
* FITS LC-HP BELOW
* 6 AMP 120/240 VOLT



6 FOOT LINE CORDS

LC-2 2 CONDUCTOR39
LC-3 2 CONDUCTOR99
LC-HP 3 CONDUCTOR W/STD
FEMALE SOCKET . . . 1.49

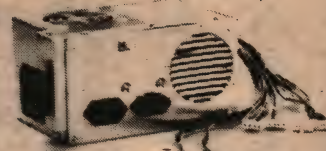
MUFFIN FANS

3.15" SQ RQTRON 14.95
3.63" SQ ETRI 14.95
3.18" SQ MASUSHITA 16.95

SWITCHING POWER SUPPLIES

PS-IBM \$99.95

* FOR IBM PC-XT COMPATIBLE
* 130 WATTS
* +5V @ 15A, +12V @ 4.2A
* -5V @ .5A, -12V @ .5A
* ONE YEAR WARRANTY



PS-IBM/150

PS-IBM-150 \$129.95

* 150 WATTS
* FOR IBM PC-XT COMPATIBLE
* +12 @ 5.2A, +5 @ 16A
* -12 @ .5A, -5 @ .5A
* ONE YEAR WARRANTY



PS-100/130

PS-100 \$89.95

* 100 WATTS
* SWITCH ON REAR
* FOR USE IN OTHER IBM
TYPE MACHINES
* 90 DAY WARRANTY



PS-A

PS-130 \$99.95

* 130 WATTS
* SWITCH ON REAR
* FOR USE IN OTHER IBM
TYPE MACHINES
* 90 DAY WARRANTY



PS-3

PS-A \$49.95

* USE TO POWER APPLE TYPE
SYSTEMS
* +5V @ 4A, +12V @ 2.5A
* -5V @ .5A, -12V @ .5A
* APPLE POWER CONNECTOR



PS-ASTEC

PS-3 \$39.95

* AS USED IN APPLE III
* +5V @ 4A, +12V @ 2.5A
* -5V @ .25A, -12V @ .30A,
* 15.5" x 4.5" x 2.0", .884 LBS.



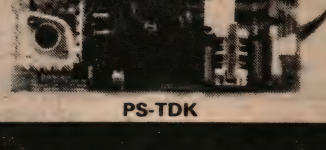
PS-ASTEC \$19.95

* CAN POWER TWO 5 1/4" FDDs
* +5V @ 2.5A, +12V @ 2A
* -12V @ .1A
* +5V @ 5A IF +12V IS NOT USED
* 6.3" x 4.0" x 1.9", 1 LB.



PS-TDK \$29.95

* +5V @ 4A, +12V @ 2A
* +12V @ 2.8A, -12V @ .30A
* 6.2" x 7.4" x 1.7", 1.6 LBS.



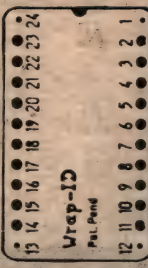
PS-TDK

SOCKET-WRAP I.D.™

* SLIPS OVER WIRE WRAP PINS
* IDENTIFIES PIN NUMBERS ON WRAP
SIDE OF BOARD
* CAN WRITE ON PLASTIC, SUCH AS IC #

PINS	PART#	PCK. OF	PRICE
8	IDWRAP 08	10	1.95
14	IDWRAP 14	10	1.95
16	IDWRAP 16	10	1.95
18	IDWRAP 18	5	1.95
20	IDWRAP 20	5	1.95
22	IDWRAP 22	5	1.95
24	IDWRAP 24	5	1.95
28	IDWRAP 28	5	1.95
40	IDWRAP 40	5	1.95

PLEASE ORDER BY NUMBER OF
PACKAGES (PCK. OF)



ID WRAP 24

FRAME STYLE TRANSFORMERS

12.6V AC CT 2 AMP 5.95
12.6V AC CT 4 AMP 7.95
12.6V AC CT 8 AMP 10.95
25.2V AC CT 2 AMP 7.95

25 PIN D-SUB GENDER CHANGERS

\$7.95



CAPACITORS

TANTALUM

1.0µf	15V .35	.47µf	35V .45
6.8	15V .70	1.0	35V .45
10	15V .80	2.2	35V .65
22	15V 1.35	4.7	35V .85
.22	35V .40	10	35V 1.00

DISC

10pf	50V .05	680	50V .05
22	50V .05	.001µf	50V .05
27	50V .05	.0022	50V .05
33	50V .05	.005	50V .05
47	50V .05	.01	50V .07
68	50V .05	.02	50V .07
100	50V .05	.05	50V .07
220	50V .05	.1	12V .10
560	50V .05	.1	50V .12

MONOLITHIC

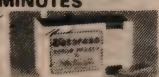
.01µf	50V .14	.1µf	50V .18
.047µf	50V .15	.47µf	50V .25

ELECTROLYTIC

RADIAL		AXIAL	
1µf	25V .14	1µf	50V .14
2.2	35V .15	10	50V .16
4.7	50V .15	22	16V .14
10	50V .15	47	50V .20
47	35V .18	100	35V .25
100	16V .18	220	25V .30
220	35V .20	470	50V .50
470	25V .30	1000	16V .60
2200	16V .70	2200	16V .70
4700	25V 1.45	4700	16V 1.25
COMPUTER GRADE	44,000µf	30V	3.95

DATARASE EPROM ERASER \$34.95

* ERASES TWO EPROMS IN 10 MINUTES
* COMPACT-NO DRAWER
* THIN METAL SHUTTER
PREVENTS UV LIGHT
FROM ESCAPING



1/4 WATT RESISTORS

5% CARBON FILM ALL STANDARD VALUES
FROM 1 OHM TO 10 MEG. OHM
10 PCS same value .05 100 PCS same value .02
50 PCS same value .025 1000 PCS same value .015

RESISTOR NETWORKS

SIP	10 PIN	9 RESISTOR	.69
SIP	8 PIN	7 RESISTOR	.59
DIP	16 PIN	8 RESISTOR	1.09
DIP	16 PIN	15 RESISTOR	1.09
DIP	14 PIN	7 RESISTOR	.99
DIP	14 PIN	13 RESISTOR	.99

SPECIALS ON BYPASS CAPACITORS

.01µf CERAMIC DISC	100/\$5.00
.01µf MONOLITHIC	100/\$10.00
.1µf CERAMIC DISC	100/\$6.50
.1µf MONOLITHIC	100/\$12.50

NEW BOOKS BY STEVE CIARCIA

BUILD YOUR OWN
280 COMPUTER \$19.95
CIRCUIT CELLAR VOL 1 \$17.95
CIRCUIT CELLAR VOL 2 \$18.95
CIRCUIT CELLAR VOL 3 \$18.95
CIRCUIT CELLAR VOL 4 \$18.95

MICROCOMPUTER HARDWARE HANDBOOK

FROM ELCOMP \$14.95
OVER 800 PAGES OF DATA SHEETS
ON THE MOST COMMONLY USED
ICs. INCLUDES TTL, CMOS, 74LS00,
MEMORY, CPUs, MPU SUPPORT.
AND MUCH MORE!

IC MASTER \$79.95

THE INDUSTRY STANDARD

A complete listing of currently manufactured ICs from over
225 manufacturers. It includes a part # index, an alternative
source guide as well as specification and application notes on
thousands of devices.



WISH SOLDERLESS BREADBOARDS

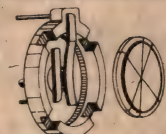
PART NUMBER	DIMENSIONS	DISTRIBUTION STRIP(S)	TIE POINTS	TERMINAL STRIP(S)	TIE POINTS	BINDING POSTS	PRICE
WBU-D	.38 x 6.50"	1	100	---	---	---	2.95
WBU-T	1.38 x 6.50"	---	---	1	630	---	6.95
WBU-204-3	3.94 x 8.45"	1	100	2	1260	2	17.95
WBU-204	5.13 x 8.45"	4	400	2	1260	3	24.95
WBU-206	6.88 x 9.06"	5	500	3	1890	4	29.95
WBU-208	8.25 x 9.45"	7	700	4	2520	4	39.95

RELAYS

VOLTAGE	CONTACTS	FITS	PRICE
5 VDC	SPST REED	DIP	3.95
12 VDC	DPDT 2 AMP	DIP	3.95
6 VDC	6PDT 3 AMP	RELAY SOC	2.95
12 VDC	4PDT 3 AMP	RELAY SOC	3.95
24 VDC	DPDT 3 AMP	RELAY SOC	3.95
48 VDC	4PDT 3 AMP	RELAY SOC	3.95
120 VAC	4PDT 3 AMP	RELAY SOC	3.95

LITHIUM BATTERY

AS USED IN CLOCK CIRCUITS



3 VOLT BATTERY \$3.95
BATTERY HOLDER \$1.49

VISIT OUR RETAIL STORE LOCATED AT 1256 SOUTH BASCOM AVENUE IN SAN JOSE



JDR Microdevices

1224 S. Bascom Avenue, San Jose, CA 95128
800-538-5000 • 800-662-6279 (CA) • (408) 995-5430
FAX (408) 275-8415 • Telex 171-110

ALL MERCHANDISE 100% GUARANTEED

HOURS: M-W-F, 9-5

TU-TH, 9-9

SAT, 10-3

PLEASE USE YOUR CUSTOMER NUMBER WHEN ORDERING

TERMS: Minimum order \$10.00. For shipping and handling include \$2.50 for UPS
Ground, and \$3.50 for UPS Air. Orders over 1 lb. and foreign orders may require
additional shipping charges - please contact our sales department for the amount. CA
residents must include applicable sales tax. All merchandise is warranted for 90 days
unless otherwise stated. Prices are subject to change without notice. We are not
responsible for typographical errors. We reserve the right to limit quantities and to
substitute manufacturer. All merchandise subject to prior sale.

JDR Microdevices

1224 South Bascom Avenue, San Jose, CA 95128
(408) 995-5430 • FAX (408) 275-8415 • Telex 171-1110

BAL PRINTER BUFFERS

- * FREES COMPUTER FOR OTHER TASKS WHILE PRINTING LONG DOCUMENTS.
- * STANDALONE DESIGN - WORKS WITH ANY COMPUTER OR PRINTER.
- * ALL MODELS FEATURE PRINT PAUSE, MEMORY CHECK AND GRAPHICS CAPABILITY.

SP120P PARALLEL \$139.95
* 64K UPGRADABLE TO 256K
* LED INDICATOR SHOWS VOLUME OF DATA IN BUFFER

SP120S RS232 SERIAL \$159.95
* 64K UPGRADABLE TO 256K
* SIX SELECTABLE BAUD RATES FROM 600B - 19,200B

SP110 PARALLEL \$249.95
* 64K UPGRADABLE TO 512K
* SPOOLS OUTPUT OF UP TO THREE COMPUTERS
* LED BARGRAPH DISPLAYS AMOUNT OF DATA IN BUFFER
* RESET FUNCTION CLEARS DATA IN BUFFER
* REPEAT FUNCTION CAN PRODUCE MULTIPLE COPIES OF A DOCUMENT



SP120



SP110

BAL 3-WAY SWITCH BOXES

- * SERIAL OR PARALLEL
- * CONNECTS 3 PRINTERS TO 1 COMPUTER OR 3 COMPUTERS TO 1 PRINTER
- * ALL LINES SWITCHED
- * HIGH QUALITY ROTARY SWITCH MOUNTED ON PCB
- * GOLD CONTACTS
- * STURDY METAL ENCLOSURE



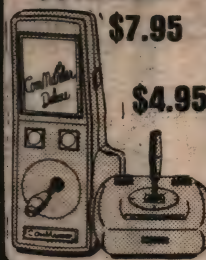
SWITCH-3P CENTRONICS PARALLEL 99.95
SWITCH-3S RS232 SERIAL 99.95

IBM PRINTER CABLE

- * DB25 TO CENTRONICS
- * SHIELDED CABLE

\$9.95

JOYSTICKS



\$7.95

\$4.95

FLOPPY DISK DRIVES

TEAC
FD-55B 1/2 HEIGHT DS/DD \$89.95
FD-55F 1/2 HEIGHT DS/QUAD \$99.95

SHUGART
SA460 5 1/4" (80 TRACK) DS/QUAD \$199.95

TANDON
TM100-2 5 1/4" (FOR IBM) DS/DD \$99.95

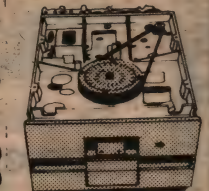
MPI
MPI-B52 5 1/4" (FOR IBM) DS/DD \$89.95

SIEMENS 8" DISK DRIVES
FD100-8 SS/DD SA801 EQUIV. \$119.00
FD200-8 DS/DD SA851 EQUIV. \$159.00

JFORMAT-2 SOFTWARE \$49.95
SUPPORT FOR QUAD DENSITY DRIVES FROM TALL TREE SYSTEMS



TEAC FD-55B



TANDON TM100-2

DISK DRIVE CABINETS

5 1/4" DRIVE ENCLOSURES

CAB-APPLE APPLE TYPE DRIVE CABINE WITHOUT POWER SUPPLY \$24.95
CAB-1FH5 FULL HEIGHT 5 1/4" BEIGE DRIVE CABINET WITH POWER SUPPLY \$69.95
CAB-2SV5 DUAL SLIMLINE 5 1/4" CABINET WITH POWER SUPPLY - VERTICAL MOUNT \$49.95

8 INCH DRIVE ENCLOSURES BY JMR

CAB-2SV8 DUAL SLIMLINE 8" DRIVE CABINET WITH POWER SUPPLY - VERTICAL MOUNT \$209.95
CAB-2FH8 DUAL FULL HEIGHT 8" DRIVE CABINET WITH POWER SUPPLY - HORIZONTAL \$219.95



CAB-2SV5



CAB-2FH8

NASHUA DISKETTE SPECIALS

5 1/4" SOFT SECTOR
DS/DD WITH HUB RINGS

\$9.90
BOX OF 10

89¢ea
BULK QTY 50

79¢ea
BULK QTY 250

NASHUA DISKETTES WERE JUDGED TO HAVE THE HIGHEST POLISH AND RECORDED AMPLITUDE OF ANY DISKETTES TESTED. SEE "COMPARING FLOPPY DISKS", BYTE 9-84.

DISKETTE FILE

\$8.95



HOLDS 70 5 1/4" DISKETTES

DISKETTES

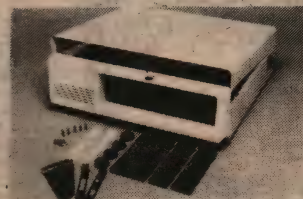
NASHUA 5 1/4"
N-MD2D DS/DD SOFT SECTOR \$9.90
N-MD2F DS/QUAD SOFT SECTOR \$34.95
N-MD2H DS/HIGH DENSITY FOR AT \$49.95
NASHUA 8"
N-FD1 SS/DD SOFT SECTOR \$27.95
N-FD2D DS/DD SOFT SECTOR \$34.95
NASHUA 3.5"
N-3.5SS 3.5" SS/DD FOR MACINTOSH \$32.95
VERBATIM 5 1/4"
V-MD1D SS/DD SOFT SECTOR \$23.95
V-MD2D DS/DD SOFT SECTOR \$29.95
V-MD110D SS/DD 10 SECTOR HARD \$23.95

IBM STYLE COMPUTER CASE

ATTRACTIVE STEEL CASE, WITH HINGED LID, FITS POPULAR PC/XT COMPATIBLE MOTHER-BOARDS.

- * SWITCH CUT-OUT ON SIDE FOR PC/XT STYLE POWER SUPPLY
- * CUT-OUT FOR 8 EXPANSION SLOTS
- * ALL HARDWARE INCLUDED

ONLY \$59.95



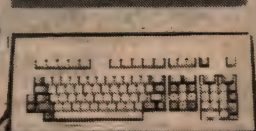
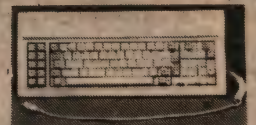
IBM COMPATIBLE KEYBOARDS

DKM-2000 \$79.95

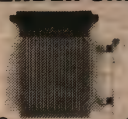
- * FULLY IBM COMPATIBLE
- * 83 KEY WITH CAPACITANCE TYPE SWITCHES
- * LED STATUS INDICATORS FOR CAPS, NUMBER LOCK
- * AUDIBLE CLICK

KB-5151 \$99.95

- * ENHANCED IBM COMPATIBLE
- * SEPARATE CURSOR AND NUMERIC KEYPADS
- * CAPS LOCK & NUMBER LOCK INDICATORS
- * IMPROVED KEYBOARD LAYOUT



EXTENDER CARDS



IBM

IBM-PC \$45.00
IBM-AT \$68.00
APPLE II \$45.00
APPLE IIe \$45.00
MULTIBUS \$86.00

POWER STRIPS

- * UL APPROVED
- * 15A CIRCUIT BREAKER

\$12.95



KEYBOARD-AP

- * REPLACEMENT FOR APPLE II KEYBOARD
- * CAPS LOCK KEY
- * AUTO-REPEAT
- * ONE KEY ENTRY OF BASIC OR CPM COMMANDS

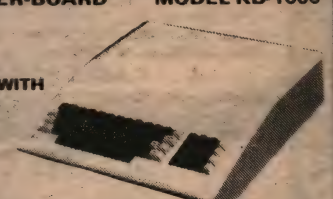


\$49.95

CASE WITH KEYBOARD

FOR APPLE MOTHER-BOARD MODEL KB-1000

- * USER DEFINED FUNCTION KEYS
- * NUMERIC KEYPAD WITH CURSOR CONTROL
- * CAPS LOCK
- * AUTO-REPEAT



ONLY \$79.95

HIGH QUALITY TEST EQUIPMENT FROM JDR INSTRUMENTS

20 MHz DUAL TRACE OSCILLOSCOPE

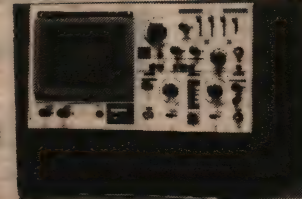
MODEL 2000 \$389



- * BAND WIDTH - DC: TO 20 MHz (-3db)
- * AC: 10 Hz TO 20MHz (-3db)
- * SWEEP TIME - 2 μSEC TO .5 SEC/DIV ON 20 RANGES
- * COMPLETE MANUAL AND HIGH QUALITY HOOK-ON PROBES INCLUDED
- * INPUT IMPEDANCE: 1 MEG OHM
- * TV VIDEO SYNC FILTER
- * X-Y AND Z AXIS OPERATION
- * 110/220 VOLT OPERATION
- * COMPONENT TESTER
- * LP CONSUMPTION - 19 WATTS
- * BUILT-IN CALIBRATOR
- * AUTOMATIC OR TRIGGERED TIMEBASE

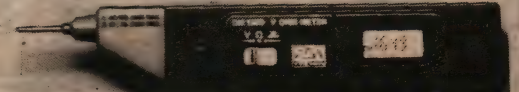
35 MHz DUAL TRACE OSCILLOSCOPE

MODEL 3500 \$549



- * BAND WIDTH - DC: TO 35MHz (-3db)
- * AC: 10 Hz TO 35MHz (-3db)
- * SWEEP TIME - .1 μSEC TO .5 SEC/DIV ON 21 RANGES
- * DELAYED TRIGGER - 100 mSEC TO 1 μSEC WITH INTENSIFIED AND DELAYED MODES
- * COMPLETE MANUAL AND 1X-10X COMPENSATED HOOK-ON PROBES INCLUDED
- * VARIABLE HOLD OFF FOR VIEWING COMPLEX WAVES
- * TV VIDEO SYNC FILTER
- * TRIGGERING OF CH-A, CH-B, ALTERNATING, LINE OR EXTERNAL
- * X-Y AND Z AXIS OPERATION

DIGITAL MULTIMETER PEN MODEL DPM-1000



\$49.95

AUTO RANGING, POLARITY AND DECIMAL!

- * LARGE 3.5" DISPLAY
- * DATA HOLD SWITCH FREEZES READING
- * FAST, AUDIBLE CONTINUITY TEST
- * LOW BATTERY INDICATOR
- * OVERLOAD PROTECTION
- * ONLY 1 1/4 x 6 1/4 x 1/4"
- * DC VOLTS 1mV-500V
- * AC VOLTS 1mV-500V
- * .1 OHM - 2 MEG OHM
- * WEIGHS ONLY 2.3 OUNCES
- * LOW PARTS COUNT-CUSTOM 80 PIN LSI INSURES RELIABILITY
- * INCLUDES MANUAL, BATTERIES, HARD CASE, AND ALLIGATOR CLIP

CALL FOR VOLUME QUOTES

© COPYRIGHT 1985 JDR MICRODEVICES

JDR Microdevices

1224 South Bascom Avenue, San Jose, CA 95128
800-538-5000 • 800-662-6279 (CA) • (408) 995-5430 • FAX (408) 275-8415 • Telex 171-110

IBM COMPATIBLE INTERFACE CARDS ALL WITH A ONE YEAR WARRANTY

MULTIFUNCTION CARD \$129.95

ALL THE FEATURES OF AST'S 6 PACK PLUS AT HALF THE PRICE



- * CLOCK/CALENDAR
- * 0-384K RAM
- * SERIAL PORT
- * PARALLEL PORT
- * GAME PORT
- * SOFTWARE INCLUDED

PRINTER CABLE \$9.95 64K RAM UPGRADE 9/\$7.11

COLOR GRAPHICS ADAPTOR \$99.95

FULLY COMPATIBLE WITH IBM COLOR CARD



- * 4 VIDEO INTERFACES: RGB, COMPOSITE COLOR, HI-RES, COMPOSITE MONOCHROME, CONNECTOR FOR RF MODULATOR
- * COLOR GRAPHICS MODE: 320 x 200
- * MONO GRAPHICS MODE: 640 x 200
- * LIGHT PEN INTERFACE

MONOCHROME GRAPHICS CARD \$129.95

FULLY COMPATIBLE WITH IBM MONOCHROME ADAPTOR AND HERCULES GRAPHICS CARD



- * LOTUS COMPATIBLE
- * TEXT MODE: 80 x 25
- * GRAPHICS MODE: 720 x 348
- * PARALLEL PRINTER INTERFACE
- * OPTIONAL SERIAL PORT

FLOPPY DISK DRIVE ADAPTOR \$59.95



- * INTERFACES UP TO FOUR STANDARD FDDs TO IBM PC OR COMPATIBLES
- * INCLUDES CABLE FOR TWO INTERNAL DRIVES

1200 BAUD INTERNAL MODEM FOR IBM

INCLUDES PC TALK III COMMUNICATIONS SOFTWARE



- * HAYES COMPATIBLE
- * AUTO DIAL/AUTO ANSWER
- * AUTO RE-DIAL ON BUSY
- * INCLUDES SERIAL PORT
- * ONE YEAR WARRANTY

EASYDATA-12B \$195

300 BAUD MODEM FOR APPLE OR IBM

CLOSE-OUT SPECIAL NOW ONLY



\$49.95

INCLUDES ASCII PRO-EZ SOFTWARE (A \$100 VALUE IN ITSELF)

- * FCC APPROVED
- * BELL SYSTEMS 103 COMPATIBLE
- * INCLUDES AC ADAPTOR

- * AUTO DIAL/AUTO ANSWER
- * DIRECT CONNECT

CABLE FOR APPLE IIc \$14.95

100 CPS ESPRIT PRINTER



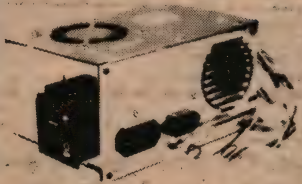
\$149.95

- * 9 x 9 DOT MATRIX
- * 100 CPS - BIDIRECTIONAL
- * FRICTION AND TRACTOR FEED
- * PROPORTIONAL SPACING

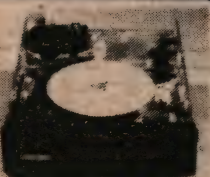
- * 80 COLUMN
- * PARALLEL AND SERIAL INTERFACES
- * 8 CHARACTER SETS AND GRAPHICS

CABLE TO IBM PC \$9.95
REPLACEMENT RIBBON CARTRIDGE SZ-44 \$11.95

PS-IBM 130 WATTS \$89.95



TEAC DISK DRIVES FOR IBM PCs



FD-55B DS/DD \$89.95
FD-55F DS/QUAD \$89.95

UNBELIEVABLE MONITOR DEALS

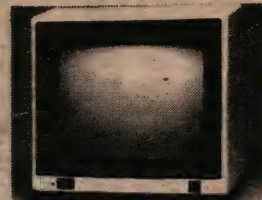


TAXAN R&B VISION III MODEL 415

- * 18 MHz BAND WIDTH
- * 640 x 262 PIXEL RESOLUTION
- * 16 COLORS WITH INTENSITY CONTROL
- * 12" BLACK MATRIX
- * IBM AND LOTUS COMPATIBLE

CABLE FOR IBM \$15.95

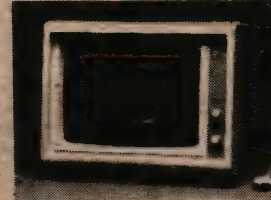
\$289.95



SAKATA COMPOSITE COLOR MODEL SC-100

- * TOP RATED FOR APPLE
- * 13" COMPOSITE VIDEO
- * RESOLUTION: 280H x 300V
- * INTERNAL AUDIO AMPLIFIER
- * ONE YEAR WARRANTY

\$169.95



SAMWOO MONOCHROME MODEL DM-216B

- * PERFECT COSMETIC MATCH FOR IBM PC
- * IBM COMPATIBLE TTL INPUT
- * 12" NON-GLARE SCREEN
- * P39 GREEN PHOSPHOR
- * HI-RES 22 MHz BAND WIDTH

\$99.95

MONITOR STAND TILTS AND SWIVELS



\$12.95

APPLE COMPATIBLE INTERFACE CARDS

EPROM PROGRAMMER \$79.95



MODEL RP525

- * DUPLICATE OR BURN ANY STANDARD 27xx SERIES EPROM
- * EASY TO USE MENU-DRIVEN SOFTWARE INCLUDED
- * MENU SELECTION FOR 2716, 2732, 2732A, 2764 & 27128
- * HIGH SPEED WRITE ALGORITHM
- * LED INDICATORS FOR ACTIVITY
- * NO EXTERNAL POWER SUPPLY REQUIRED
- * ONE YEAR WARRANTY



16K RAMCARD \$39.95

- * FULL TWO YEAR WARRANTY
- * EXPAND YOUR 48K APPLE TO 64K
- * USE IN PLACE OF APPLE LANGUAGE CARD

DAKE PC CARD W/ INSTRUCTIONS \$9.95



IC TEST CARD \$99.95

- * QUICKLY TESTS MANY COMMON ICs
- * DISPLAYS PASS OR FAIL
- * ONE YEAR WARRANTY
- * TESTS: 4000 SERIES CMOS, 74HC SERIES CMOS, 7400, 74LS, 74L, 74H, 74S, SOME PROMS AND RAMS

DISK DRIVES

FOR APPLE COMPUTERS



**BAL-525
\$99.95**

- * 1/2 HEIGHT-ALPS MECHANISM
- * 100% APPLE COMPATIBLE
- * FULL 1 YEAR WARRANTY



**BAL-500
\$129.95**

- * TEAC MECHANISM- DIRECT DRIVE
- * 100% APPLE COMPATIBLE
- * FULL 1 YEAR WARRANTY



**AP-135
\$129.95**

- * FULL HT. SHUGART MECHANISM
- * DIRECT REPLACEMENT FOR APPLE DISK II
- * SIX MONTH WARRANTY



**FOR APPLE IIc
AD-3C
\$139.95**

- * 100% APPLE IIc COMPATIBLE, READY TO PLUG IN W/ SHIELDED CABLE & MOLDED 19 PIN CONNECTOR
- * FAST, RELIABLE SLIMLINE DIRECT DRIVE
- * SIX MONTH WARRANTY



**FOR MACINTOSH
MAC 535
\$299.95**

- * 3.5" ADD-ON DISK DRIVE
- * 100% MACINTOSH COMPATIBLE
- * SINGLE SIDED 400K BYTE STORAGE
- * HIGH RELIABILITY DRIVE FEATURES
- * AUTO-EJECT MECHANISM
- * FULL ONE YEAR WARRANTY

DISK DRIVE ACCESSORIES

DISK CONTROLLER CARD \$49.95
APPLE IIc ADAPTOR CABLE \$19.95
ADAPTS STANDARD APPLE DRIVES FOR USE WITH APPLE IIc

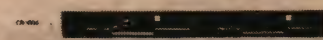
COMREX CR-1000 DUAL SLIMLINE DISK DRIVE FOR APPLE COMPUTERS

\$189.95

SPACE SAVING DESIGN
STACK BETWEEN COMPUTER AND MONITOR

- * QUIET, RELIABLE 1/2 HEIGHT DRIVES
- * TOTAL STORAGE CAPACITY: 286K BYTES
- * AUTO-EJECT MECHANISM
- * SHIELDED CABLE INCLUDED

INCLUDES CONTROLLER AND DOS 3.3 WITH DISK UTILITIES



ALL MERCHANDISE 100% GUARANTEED

© COPYRIGHT 1985 JDR MICRODEVICES

The Silver Box Continued from page 66

arrangement, it is normal to ground the circuit ground via capacitors and resistors, to avoid producing a low impedance loop circuit, which tends to pick up AC line electro-magnetic radiation. This option is a useful feature if you use plastic mounting structure, but not when mounted inside a metal cabinet. Remove this jumper, and you are richer by two jumper plugs.

The Toshiba Drive

Model Tested: FDD5401A REV C, SER.No. A6463002 Date Coded: None, But One Component Shows 8415

This drive is built like the Rock of Gibraltar with a very heavy diecast frame. It weighs almost twice the weight of the recent Teac drives at about 3-1/2 pounds. It works very quietly with 6 milli-second stepping pulse, but the IBM PC diagnostic software finds this drive reacting too slowly to their commands and produces an error condition. I suspect that the drive pulses are intentionally made slow-rising to lower the noise. The spec says that the maximum stepping pulse rate is 5 milli-seconds.

This one may not work in the IBM PC, but works just fine for the Sanyo, with a very low noise level. This is a highly recommended drive for use in the Sanyo MBC-550/555.

Power Requirements:
+5V 0.5A, +12V 0.8A in normal operating condition

Options: Eight jumper connections: D1, D2, D3, D4, LI, LD, HD, HM

Options D1 through D4 set drive select position, D1 is for Drive A, D2 is for Drive B, and so forth. The manner of selecting options in this model is simple and very straightforward.

Put shorting bar on Option LD (LED-on when drive is selected) and on Option HD (loads heads when the drive is selected).

Options LI (LED-on when IN-USE signal is active) and HM (heads are loaded when MOTOR-ON signal is active) should be left open for use in Sanyo MBC-550/555.

The above selection of options sets the drives to have LED-ON when selected, and heads will be loaded only when selected. Operation is generally very reliable, and the noise level is low. The one I have did not require any adjustment.

The Mitsubishi Drive

Drive Tested: Model 4853, Ser. No. G3H58375, Dated 9-83

This drive is one of my favorites, as well as the Toshiba drives. It is moderately quiet to operate, and the overall quality is excellent. However, the one I tested had lower than normal noise immunity. I assumed that the interface input circuits have lower noise tolerance than others. Other drives operated perfectly with my six foot long drive test cable, but this drive produced lots of write errors, with my testing setup. However, the unit works perfectly with a

short cable inside the Silver Box. But only if the interface connector next to the mother board connection is used on this unit. Make sure that the pull-up resistors are in place in the last drive only at the end of the cable and not in the other drive(s).

Also, it was my experience, when I tried it the first time, that this unit produced some soft errors in a PC Clone. This

condition was cleared when I cleaned the heads with a cleaning disk. The unit is very reliable, but I should admit that it is somewhat temperamental.

You should note that I had to adjust both the track position and the TRACKOO sensor to read 40 track diskettes and to be compatible with my other 80 track drives.

A salesman working for a disk drive dealer told me once

that if I have problems with the Mitsubishi, I should try Daisan's 96 tpi diskettes, which is something my TEAC 96 tpi drives have never asked for. Using better polished, but otherwise ordinary, DSDD disks, the 55Fs operated perfectly and never produced any errors unless I goofed or mistreated the Silver Box. But

Continued on page 149

NOW AT THE SBC MART COMPUTING SALE-A-THON

OUR BIGGEST SALE EVENT EVER!

HARD DISK KITS

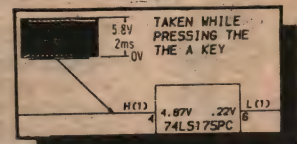


- complete 10MB Kit
- only \$460

- Complete internal 1/2-hi 10MB kit, only \$460.
- Same kit with low-power 3-1/2" drive, \$495.
- 3-1/2" 10MB Winchester drive alone, now \$395.

COMPUTERFACTS

- schematics
- waveforms
- troubleshooting techniques



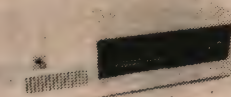
Buy now and get **INTRODUCTORY PRICES**. Complete systems \$39 each: Apple IIc, IBM PC, TRS-80 I.

Components \$19 each: Apple II/II-Plus, IIe; Epson MX-80F/T, MX-100, FX-80, FX-100.

Over 40 more. Write for list.

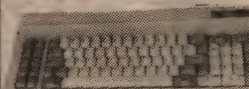
SPECIAL BONUS Norton Utilities Ver 3.0 Reg \$90, only \$60 w/purchase of any disk drive.
IBM PC-DOS 3.1 (the real thing) Reg \$65, only \$50 w/purchase of motherboard.

CASES



- IBM style, 5 or 8 slot Reg \$95, Sale \$69.

KEYBOARDS



- 5150 style Reg \$125, on sale for only \$90.

MOTHERBOARDS



- fully IBM PC compatible
- runs IBM's PC-DOS

These are excellent foundations for complete business, personal, and workbench/integration PCs.

- MB-1 256K motherboard, 8 exp slots, w/OK Reg \$295, now \$220; 256K Sale \$260.
- MB-2 640K motherboard, 4.77 and 8MHz clock, 8 exp slots, w/256K Reg \$449, now \$369.

SUPER SOFTWARE SPECIALS

- Microsoft Macro assembler **BEST PRICE \$107**, BASIC interp Reg \$340, Sale \$280.
- Ellis/Utah COBOL or PASCAL compilers, or BASIC interpreter, only \$39 each.
- Open Systems Business BASIC interpreter, Reg \$180, Sale \$155.
- True Lattice C compiler Reg \$475, Sale \$349.



Complete system on sale under \$1,000.

MORE SALE SPECIALS

- 135W XT power supply, side switch, four drive cables \$95.
- Very best in diskettes: CDC 5-1/4" DS/DD Reg \$30, Sale \$20/box of 10; CDC 5 1/4" DS/QD Reg \$38, Sale \$28/box.
- Memory, 9 chips, 150ns or faster, 64K set \$9; 256K set \$47.
- Anchor Express modem (Hayes equivalent) 300/1200 baud auto ans/dial Reg \$399, Sale \$299.
- No better DS/DD drives anywhere, Sanyo 48TPI \$99; 96TPI \$119.

OUR PLEDGE

- technical support
- one-year warranty
- service after sale
- and low prices

ADD-ON CARDS

- multifunction \$145 384K, clk/cal, S, P
- monochrome \$145 runs 1-2-3, 720x348
- floppy controller \$74 up to 4 dr, w/cable
- color adapter \$116 RGB and composite
- Super 7+ MFC \$220 S, P, clk/cal, game 4-floppy controller with RAMDISK and SPOOLer

FREE OFFER

- **FREE** clock/calendar card w/\$250 orders.
- **FREE** Sentinel DS/DD color diskette for every \$50 ordered.

Shipping and handling: drives/motherboards/cases/power supplies \$6.50 ea, cards \$3 ea, software \$2.50 ea, modems/keyboards \$4 ea, COMPUTERFACTS \$3 ea, memory/diskettes \$1/set/box. CA residents add 6% sales tax. Sale ends December 15.

The SBC Mart

Visa/MC/AmEx ORDERS CALL: 1-800-443-0100, Ext. 540

For more information or to mail your order, call or write
The SBC Mart, P.O. Box 1296, Ridgecrest, CA 93555 (619) 375-5744

The SBC Mart is part of Computing Technology, 621-B Commercial Street, Ridgecrest, CA 93555

NEC Starlet™ MEMORY SYSTEMS

3 1/2" FLOPPY DISK DRIVE \$395

- 300K USER CAPACITY, CP/M FORMAT
- COMPLETE 8431A EMULATION
- FAST SINGLE/DUAL DRIVE FILE BACKUP AND COPY PROGRAM
- DISK/DRIVE VERIFY PROGRAM
- COMPACT: 2.2" x 4.1" x 6.4"
- POWER AUTOSWITCHED FROM STARLET
- SUPPLIES DC POWER TO STARLET

128K DATAPAC® CARTRIDGE \$179

64K DATAPAC® CARTRIDGE \$119

- 3 YEAR, USER REPLACEABLE BACKUP BATTERY
- 32K VERSION, 8401A OR 8201A

8K MODULE FOR MODEL 100

8201A AND M-10 \$25

- Thousands sold, easy installation

NODE POLICY:

- 30 day money-back guarantee
- 12 month warranty — 3 day air service
- Free UPS 2ND DAY AIR shipping
- Quantity discounts start at 3 units

PAYMENT: VISA OR MASTERCARD, Checks held 14 days, C.O.D. add \$2, California residents add 6% tax.



Call for immediate delivery (408) 462-3773



COMPUTER SYSTEMS

720 CAPITOLA AVE., BLDG. D
CAPITOLA, CA 95010

STARLET™ is a registered trademark of NEC

Sanyo BASIC User's Handbook

by Fred Blechman

Having written five books on the BASIC language for various computers, I know how difficult it is to address the expected audience. Six or seven years ago you could assume the reader knew absolutely nothing about the BASIC language, and you'd be correct in the majority of cases. Today, however, with the BASIC language so well entrenched and used with so many home and personal computers, a machine-specific book must aim at the exact vocabulary and syntax of the BASIC used with that computer.

language, and you'd be correct in the majority of cases. Today, however, with the BASIC language so well entrenched and used with so many home and personal computers, a machine-specific book must aim at the exact vocabulary and syntax of the BASIC used with that computer.

Sanyo BASIC

Sanyo chose, for whatever their reasons, to use an IBM PC-like BASIC for their MBC 550/555 microcomputers. Unfortunately, however, "like" is not the same as "identical," and there's where problems arise. The differences in Sanyo BASIC added to the chorus of "Incompatible! Incompatible!" that critics aimed at an otherwise excellent product.

Sanyo MBC BASIC bears more resemblance to IBM PC BASIC, the graphics version of IBM PC BASIC, but there are still some important differences. Furthermore, the BASIC documentation supplied with the Sanyo is full of errors and omissions, and assumes considerable familiarity with the BASIC language. Therefore, the Sanyo MBC 55X user who is interested in learning or using Sanyo BASIC has to turn elsewhere for information.

Sanyo produced their *Sanyo BASIC Reference Manual*, sold thru dealers for \$30. This is a considerable improvement over the documentation that comes with the computer, but still assumes prior experience with BASIC.

Filling The Need

Two publishers have filled the need for introducing Sanyo BASIC to new users. My book, *Sanyo MBC 550/555 Beginner & Intermediate Guide*, is now in its second printing by CBS Computer Books (Holt, Rinehart & Winston). This \$17.45 book assumes no prior computer experience, goes into considerable detail for beginners, and includes many programs to illustrate various BASIC applications. A disk with 56 programs from the book is also available (\$15) to save keyboard entry time and errors.

Weber Systems has produced three Sanyo books. I reviewed their *Sanyo MBC User's Handbook* and *Sanyo MBC Business Software in BASIC* in the September 1985 issue of *Computer Shopper*. Their *Sanyo BASIC User's Handbook* has just recently been released, and it's the subject of this review.

Sanyo BASIC User's Handbook

This book is well-written, well-printed and a very worthwhile reference. While it is meant to serve as a tutorial as well as a reference, it appears to be aimed at a more sophisticated reader than my book, and goes into considerably more detail than I did on some subjects. It also supports a later

version of Sanyo BASIC (1.31) than any other publication I'm aware of (even though Sanyo BASIC is now into Version 1.32).

This 272-page book has an elaborate 7-page Table of Contents and detailed 5-page Index, making it easy to find a particular subject or command, and thus increasing its reference value.

The first 142 pages (eight chapters) are devoted to: introduction; data types; variables and operators; inputting and outputting data; conditional, branching and looping statements; tables and arrays; functions and string handling; files and file handling; color and graphics. Various short programs are utilized throughout as examples.

Some of the text gets fairly technical. There are no actual screen-dumps used in the book, but liberal use of typeset pseudo-screens, together with many line drawings and tables, combine to provide adequate explanations. Program listings are all done with a letter-quality printer for high readability.

Throughout this section--and, indeed, the entire book--special attention has been paid to the various optional parameters that can syntactically follow many BASIC keywords.

Continued on page 146

BRAND NEW MICRO COMPUTER WORKSTATIONS



26"W x 17" D TOP has provisions for securing equipment; 26.5" working height, Modesty Panel, Adjustable Leveling Feet, High Stability 26"W x 28"D Base, Heavy Gauge, All Steel, with Dark Blue Finish. Original Cost \$120.00
#7-136 Shipped Postpaid (45 lbs) **\$39.95**



Space Saver Design features a 17"W x 16"D top, 26" Working Height, Modesty Panel, All Steel construction with a Dark Blue Finish.
#7-137 Shipped Postpaid (27 lbs) **\$34.95**



14" Wide x 12" Deep TOP. Add your own wood top for an elegant display stand. Features include, All Steel construction, Dark Blue finish Adjustable Leveling Feet, Integral Wiring Duct, and Ease of Assembly.



26" Working Height
#7-138 Postpaid **\$24.95**

36" Working Height
#7-139 Postpaid **\$24.95**

ELECTRONIC RESALE ASSOCIATES

(312) 475-1082

601 Linden Place, Evanston, IL 60202

Terms: Illinois residents add 7% sales tax. VISA, MasterCard, Certified Check or M.O. Orders ship immediately, allow 2 weeks for personal checks. Call for Quantity pricing.

RTR IS "QUALITY" & "WARRANTY" (818) 282-4868

call now

Mono Graphic Printer \$139

Run Lotus. AT Compatible also

Monochrome & Printer \$109

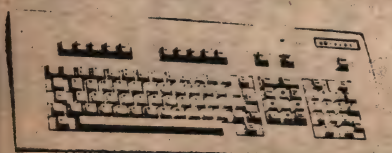
Monochrome Card \$89

Multifunction 384K \$139
6-Pak (OK)

Color Graphic Printer \$129
RGB & Video Port

Color Graphic Card \$95
RGB, Composit Color & Monochrome

Disk Controller \$62
4-Drive Control



5151 Keyboard \$119

AT Keyboard Also Available

PC/XT BAREBONE system



Assembled & Tested

ONLY
\$529

Installed in

- Metal Case & Speaker
- PC/XT Mother Board
- 135w Power Supply
- 5151 Keyboard
- Disk Controller w/Cable
- 64K On Board

Richwill Tech. Research
(COMPUTER PERIPHERAL MANUFACTURER)

1200 S. Atlantic Blvd., #107
Alhambra, CA 91803
(Free shipping for prepaid order)

Up to 640K:

PC 16 Mother Board \$259

Up to 256K:

XT 16 Mother Board \$239

All Assembled & Tested (OK)

PC/XT Type Case \$79

Build In Speaker & Stand

AT

2MB Multifunction \$CALL

AT

AT Type Case \$139

AT

Floppy & Harddisk Card \$CALL

AT

200w Power Supply \$CALL

135w Power Supply \$99



- IBM same size
- DC-Fan PWM type
- 4-Drive power plug
- AC 110v/220v

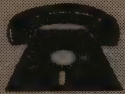
DEALER OEM DISTRIBUTOR SPECIAL PRICE JUST CALL



SANYO COMPUTER SYSTEMS

Save 49% and More

SAVE WITH CONFIDENCE - CALL MIDWEST MICRO

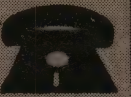


NO TAX CHARGED TO
RESIDENTS OUTSIDE OHIO
SAME DAY SHIPPING ON
ALL ITEMS IN STOCK
TECHNICAL SUPPORT

PRICE GUARANTEE

We at MidWest Micro guarantee that we can save you up to 49% or more on your purchase of new fully warranted equipment and supplies. And we will still give you friendly, courteous service. Call today and Save With Confidence!

COMPANY PURCHASE
ORDERS WELCOMED
FAST RELIABLE SERVICE
ONE CALL SHOPPING
TOLL FREE



Complete

SANYO
BUSINESS
MANAGEMENT
SYSTEM

ONLY **\$1199**
List Price \$2059



Now you can get a complete business management computer system at a home computer price. This special offer from MidWest Micro gives you everything you need to perform the most popular business computing activities. The Sanyo 550 Series computer has the power and flexibility to handle even complex tasks quickly and reliably. We include 2 IBM type disk drives to give you a generous 720,000 bytes of on-line data retrieval and storage which will hold a whopping 360 full pages of information without changing diskettes. The system comes complete with an attractive, easy-to-view monochrome monitor in your choice of green or amber. You can add a color graphics monitor at any time without modifying your system as it comes complete with a color graphics interface.

To make sure you get full benefit from this technologically advanced equipment, we include a full array of the most popular business applications software. You can breeze through your correspondence and clerical work using your Business Management System as a word processor. Then switch to your electronic spreadsheet and do some forecasting and growth projections. Next you may want to add some customers to your electronic filing system and search for those you need to contact. These and many more useful, time-saving functions can be performed with the powerful and flexible Business Management Package from MidWest Micro. We even include equipment to protect your system from damaging power line surges, a supply of diskettes, and a special place to put them. You can get started saving time and money right away.

Includes:

- *SANYO Computer with 2-360k Floppy Disk Drives
- *128k Random Access Memory
- *Green or Amber Monitor (Your Choice)
- *Fast, efficient 16 bit 8088 processor
- *Convenient, full function, detachable keyboard
- *Centronics parallel printer port
- *High quality color graphics capabilities
- *Flexible MS-DOS Operating System
- *Business Management Software
 - Word Processing (Both Wordstar and Easywriter)
 - Electronic spreadsheet (Calcstar)
 - Data Base / Electronic Filing (Datastar)
 - Mail Management (Mail Merge)
 - Spelling Manager (Spellstar)
- *Set-up, tested, and fully warranted

FREE BONUSES

- *6-plug surge protected power strip
- *Box of 10 diskettes
- *Special In-Depth 337 Page Sanyo Users Guide

SANYO

1.6 MEGABYTE
COMPLETE

ULTRA HIGH
CAPACITY

BUSINESS
MANAGEMENT
SYSTEM



Includes:

- *SANYO Computer with 2-800k quad-density floppy disk drives
- *1.6 Megabytes of storage
- *256k Random Access Memory
- *Green or Amber Monitor (Your Choice)
- *Fast, efficient 16 bit 8088 processor
- *Convenient, full function, detachable keyboard
- *Centronics parallel printer port

- *High quality color graphics capabilities
- *Flexible MS-DOS Operating System
- *Flexible QuadDOS Operating System for SS/DD, DS/DD, DS/QD
- *Business Management Software
- *Both Wordstar and Easywriter word processing software packages
- *Calcstar data management software

PLUS Get Package A or Package B

A Includes:

- *Datastar Electronic filing and data management package
- *Spelling correction with Spellstar
- *Mailmerge communication assistance software
- *Time saving Rapid fire ram-disk software

B Includes:

- *Flexible, easy-to-use FILEBASE data management software package
- *Time management assisting Calendar program

AND:

- *Your system is completely tested before carefully packaging and shipping it to you.

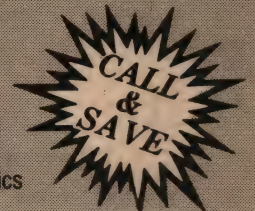
FREE BONUS

- *To protect your important investment, we will include with your Super System a **Power Management Outlet Strip** with surge protection, 6 grounded sockets, and a lighted on-off switch.
- *Box of 10 brand name **Quad-Density Diskettes**.
- *Attractive **Diskette Organizer** file which holds 50-5 1/4 inch disks.

SANYO

775 COLOR PORTABLE

- *SANYO Portable Computer with 2-360k disk drives
- *256k of Random Access Memory expandable to 640k
- *Built-in, nine inch RGB color display for excellent color graphics
- *Fast, efficient 16 bit 8088 processor
- *Full function detachable keyboard with numeric keypad and special function keys
- *Centronics parallel printer port
- *Outputs for RGB and black and white external monitors
- *8MHz, Clock speed for fast processing of data
- *Flexible MS-DOS Operating System
- *GW-Basic for super IBM PC compatibility
- *Two expansion slots, capable of accepting PC compatible boards
- *Extensive Business Management Software giving tremendous added value and usefulness



SANYO STARTER SYSTEM

Call for Details..... **\$899**



CALL TOLL FREE FOR INFORMATION OR ORDER

(800) 423-8215

IN OHIO, CALL - (800) 321-7731
HOT LINE: 513-663-4992

(FOR TECHNICAL ASSISTANCE OR INFORMATION ON YOUR ORDER)

MONDAY - FRIDAY

9 AM - 6 PM (EST)

SATURDAY 10 AM - 4 PM

PRICES SUBJECT TO CHANGE,
AVAILABILITY AND TYPE ERRORS



MidWest Micro-Peripherals

135 S. Springfield St., Saint Paris, Ohio 43072

All equipment shipped factory fresh with manufacturers warranty.

HIGH TECHNOLOGY — NOT HIGH PRICES

BASIC Data

Continued from page 81

SUBs route the program execution to the REM statement. Each module of the program is explained below along with details of its proper usage.

Master Menu DB.BDB

This module must be called first in order for any of the oth-

ers to work. In addition to providing the master menu this section asks the user for the name of the file (dataset) which is to be accessed (or created) and then opens the appropriate file and gets the specifications for the form (FILENAME.FRM) and definition (FILENAME.DEF) of fields for that dataset. Immediately following this pro-

cedure the data file (FILENAME.DAT) is OPENed and FIELDed and is ready for use in the operation which has been selected from the main menu. In the case of selections to save a RESULT dataset or EMPTY a data file, these items are also handled within this module. This module CHAINs the next module appropriate to the function desired and passes

variables to it.

Create A File Create.BDB

The user will be presented a blank screen with cursor at top left and a line on the bottom (screen line 23) informing him to enter 'CTRL' when finished creating the form. The form can be created using any characters available and a maximum of 22 lines. Use cursor

controls to manipulate the cursor about the screen. All items which are to be fields of the file must be identified by placing '{(CHR\$(123))' in front of the field name and '}' (CHR\$(126)) following the field name (i.e. {FIELDNAME}). If the fieldname is not bracketed it cannot be recognized as a field by the program. Fieldnames should contain not more than 15 characters and/or spaces. Since the brackets {} represent field demarcators these characters must not be used for anything except the identification of a fieldname. Additionally, the form MUST NOT contain any commas or double quote characters as these will have an effect upon the reading of the

Continued on page 147



Z-200 ADVANCED PC

PC-AT compatible, 512K expandable to more than 15 MEGABYTES. Supports MS-DOS 3.1 and XENIX operating systems. 80286 processor operating at 6 Mhz with socket for 80287 co-processor. Seven expansion slots. One serial and one parallel port. Detached keyboard, 360K or 1.2 MB 5.25" disk drives, built-in real-time clock with battery backup. Requires video card, not included.

ZF-241-81: 512K RAM, one 1.2 MB 5.25" disk drive. List: \$3999 CALL

ZW-241-82: 512K RAM, one 1.2 MB 5.25" disk drive, 20 MB Winchester disk drive (40 ms. avg. access). List: \$5599 CALL

NEW ZENITH IBM COMPATIBLE COMPUTERS

We have been advised that publishing our competitive prices on ZENITH computers is not acceptable; please call us for current pricing.

Z-138 Transportable PC: 256K RAM expandable to 640K, detached keyboard, 7" amber CRT, RGB and composite video output, selectable 4.7/8 Mhz. clock speed, one serial and one parallel port. Optional internal PC/XT expansion slot. Weight: 24 lbs.

ZF-138-42: Dual drive, 256K RAM. List: \$1999 CALL

Z-148 Desktop PC: 256K RAM (128K single drive unit) expands to 640K without additional cards, RGB and composite video output, selectable 4.7/8 Mhz. clock speed, one serial and one parallel port. One PC/XT compatible expansion slot.

ZF-148-21: One drive, 128K RAM. List: \$1499 CALL

ZF-148-42: Dual drive, 256K RAM. List: \$1799 CALL

Z-158 Desktop PC: 256K RAM (128K single drive unit) expandable to 640K, detached keyboard, RGB and composite video output, one serial and one parallel port, six PC/XT compatible expansion slots, selectable 4.7/8 Mhz. clock speed, 165 watt power supply.

ZF-158-21: One drive, 128K RAM. List: \$2199 CALL

ZF-158-42: Dual drive, 256K RAM. List: \$2499 CALL

ZW-158-42: One drive, 10.5 MB Winchester disk drive. List: \$3699 CALL

Z-171 Portable PC: 256K RAM expandable to 640K, dual 5.25" 360K side-loading disk drives, backlit 25 line X 80 column LCD screen, full-sized keyboard, optional RGB and composite video output, one parallel and one serial port, optional DC power supply. Weight: 14.3 lbs.

ZF-171-42: Dual drive, 256K RAM. List: \$2699 CALL

ZENITH MONITORS

ZVM-1220:	\$159.00	ZVM-123-A:	\$ 89.95
ZVM-1230:	\$159.00	ZVM-133:	\$442.00
ZVM-1240:	\$180.00	ZVM-135:	\$474.00
ZVM-122-A:	\$ 89.95	ZVM-136:	\$632.00

CENTRAL PROCESSOR UNITS

8087-2 Math Co-Processor	\$129.95
80287-3 Math Co-Processor	\$199.95

DISKETTES

Nashua Diskettes: 10 DS/DD, 48 TPI Soft Sealed, with hub rings and disk jackets included. Life-time guarantee. PRICED PER BOX.

\$12.95/ea.	\$11.75/10	\$10.55/50
-------------	------------	------------

DYNAMIC RAM MEMORY

1600-1-9	1600-10-50	1600-50-100
\$3.25/1-9	\$3.10/10-49	\$2.90/50-100

PLEASE NOTE: Prices of Dynamic RAM are extremely volatile; the pricing above was current as of 9/85. Please call for current prices. Thank You.

HARD DISK DRIVES AND ACCESSORIES

PC Compatible Winchester Disk Drive and Controller Card.
RWS-10-SX: 10.5 MB. (formatted) \$575.00



RAM Technology

427-3 AMHERST STREET, SUITE 265
NASHUA, NEW HAMPSHIRE 03063

(603) 889-0633

HOURS OF OPERATION: TUESDAY - SATURDAY 10:00 - 7:00 P.M. EST



RWS-20-SX: 21 MB. (formatted)	\$775.00
RWS-40-TD 32 MB. (formatted)	\$1250.00

PC Compatible Seagate 5.25" 1/2 Ht. Hard Disk Drives.

RSD-10: 10 MB. Drive	\$400.00
RSD-20: 20 MB. Drive	\$625.00

Fujitsu 5.25" Hard Disk Drives for PC or Z-100 Series Computers.

RFD-10: 10 MB., 1/2 Height Drive	\$495.00
RFD-27: 27 MB., Full Height Drive	\$855.00

MITSUBISHI DISK DRIVES

With One Year Guarantee

Mitsubishi M4851: 5 1/4" half height, 48 tpi, DS/DD	\$99.00
Mitsubishi M4853: 5 1/4" half height, 96 tpi, DS/DD	\$130.00
Mitsubishi M4854: 5 1/4" 1/2 ht, 96 TPI, 1.2 MB	\$230.00
Mitsubishi M2896: 8" half height, 48 tpi, DS/DD disk drive. Shugart 850/860 compatible.	\$375.00

MODEMS

Prometheus Promodem 1200	\$299.00
Prometheus Promodem 1200B W/Mite	\$255.00
Hayes Smartmodem 1200	\$445.00
Hayes Smartmodem 1200B W/O Software	\$371.00
Hayes Smartmodem 2400	\$687.00
USR Robotics Passport 300/1200	\$218.00
USR Robotics Microlink 2400 w/software	\$429.95
USR Robotics Courier 2400	\$429.95

UPGRADE ACCESSORIES

C.D.R. Z-100 SPEED MODULE:	\$39.95
SOFTWARE WIZARDRY'S RAMPAL 100.	\$69.95
RAM TECHNOLOGY'S Z-MAX 150. Install up to 704K on the H/Z 100 PC Series (H/Z 150/160) computer using 256K DRAM ...	\$24.95
Z-MAX 150 PLUS. Install up to 1 MB. on the H/Z 100 PC Series (H/Z 150/160) computer using 256K DRAM	\$34.95
HYPERCLOCK. Clock/cal for H/Z 100 PC	\$44.95

TOSHIBA

P351 Parallel	\$1335.00	P1340 Serial	\$ 631.00
P351 Serial/Parallel	\$1367.00	P1351 Parallel	\$1220.00
P1340 Parallel	\$ 631.00	P1351 Serial	\$1220.00

JUKI

6100 Parallel	\$473.00
6300 Parallel or Serial	\$786.00

FOR YOUR INFORMATION

Prices and specifications subject to change without notice. All hardware carries a 90-day warranty. Orders are processed the day they are received. Personal checks are held 10 working days for bank clearance; money orders are accepted as cash. Please add 2% to your order to cover shipping and handling; any surplus will be refunded by check with your order. Orders may be sent COD on request, cash or certified check only. Prices reflect a 4.5% cash discount; please add 4.5% to VISA/MC orders. Purchase orders accepted from businesses and educational institutions with prior credit approval. User group inquiries invited. Please call us at (603) 889-0633, Tuesday through Saturday, 10:00 A.M. to 7:00 P.M. EST, or write to RAM Technology, 427-3 Amherst Street, Suite 265, Nashua, New Hampshire 03063. We appreciate your business and guarantee satisfaction.

Sanyo BASIC

Continued from page 144

A consistent use of brackets and other symbols define the necessary and optional parameters. This allows advanced users to benefit from the full power of some commands and statements (though it is probably confusing to beginners).

I found the sections on arithmetic operators (Chapter 2) and sequential and random files (Chapter 7) particularly oriented toward advanced users, while the graphics and color coverage was very limited with only 6 pages (Chapter 8).

BASIC Reference Guide

The 149-page Chapter 9 explains every Sanyo BASIC reserved word in alphabetical order, with configuration (syntax), example and text for each. Simple Line-drawn illustrations are used where appropriate. This section can provide a quick check of optional parameters for these keywords, and makes the book particularly useful as a reference.

Adding to the book's utility are six appendices: Character Set, Reserved Words, Sanyo/IBM Keyboard Translation Table, Sanyo DOS Error Messages, Sanyo BASIC Error Messages, and a rudimentary Memory Map.

Summary

This book would be difficult for a BASIC first-user, but is excellent if you are familiar with BASIC and want the specific information on how Sanyo BASIC operates. All the keywords (as far as I can tell) are covered with some explanation. You'll need to already be familiar with some of the advanced commands to use them properly, since this book (like mine) does not address machine language orient-

Continued on page 151

Table of Variables Continued from page 81

DATINPUT	%:N	X	Used in ENTER operation for data entry
EQFLD			Number of field which computation will equal
FIELDBYTES	%	X	Number bytes used by a field of file
FIELDCOL	%	X	Column position of a field on screen
FIELDEND	%		In CREATE procedure checks for end of field
FIELDLNGTH	%	X	Length of a field of file being accessed
FIELDNAME	%	X	Name of field of record
FIELDRW	%	X	Row position on screen of a given field
FIELDTYPE	%	X	Tells type of field being used
FILENAME	%		Name of file to be accessed - user input
FINDATA	%:N	X	Used in final sorting procedure
FINREC	%	X	Used in final sorting procedure for record no.
FIXDATE	%		Used to arrange DATE data for sort or display
FLDNO	%		Numbers of fields given in compute formula
FLDNUMBR	%		In create procedure counts number of fields
FLDSTMT	%		Data used to write FIELD stmt. for file use
FORMAT	%	X	Data for a line of screen display form
FORMULA	%		Computation formula as entered by user
FUNCTION	%		Program line written to perform COMPUTE option
LFTBRKTS	%	X	Counts lft. brackets in line of form created
LNTH	%		Length of a string or field
LST	%	X	Data for columnar output in LIST operation
NUMFIELDS	%		Number of fields in file
NUMPROJ	%		Number of fields to be projected
NUMRECS	%		Number of records in file accessed
OPER	%		Number of operation selected from main menu
OPTR	%		Operator used for search or calculation
OUTFLD	%	X	Number of a given field to be listed in column
OUTPUT	%		Output option - to screen printer or both
OUTPUTNO	%		Number of fields to be output in columns
PRNTSPCS	%	X	Number of print spaces for each col. of data
PROJFLD	%	X	Number of a given field to be projected
R	%	X	Data LSET to buffer for writing to RESULT file
RECDATA	%:N	X	Data from file records
RECLNGTH	%		Length of Random Access Record for OPEN stmt.
RECNO	%		Number of record currently in use
REFDATA	%:N		Record data being compared in sort process
REFNO	%	X	Used in SORT to determine if record is sorted
REFREC	%		Number of record being compared in SORT
REPLACE	%:N		Data for revision of a record
RSLTREC	%		Number of RESULT record being written
RSLTRECLNTH	%		Length that a RESULT record is to be
RTBRKTS	%	X	Count rt. brackets in a line of form created
SEARCH	%:N		Data used for search/select procedures
SECT	%		Section of file from which record is sorted
SECTOR	%		Number of records in one sector to be sorted
SECTOREND	%		Record number at which sector being sorted ends
SECTORS	%		Number of sectors into which file is divided
SELECT	%		Main menu selections
SEQFILENAME	%		Name of output sequential file - from user
SIDE	%		For screen border
SORT	%		Record number being accessed for SORT process
SORTFLD	%		In SORT procedure - field to be sorted
SORTREC	%	X	Final position of a record in the sorted file
SRCH	%	X	Field numbers on which search procedure is used
SRCHFLD	%		Field number on which search procedure is used
STAR	%		Border for screen
TOTAL	%	X	Carries the accumulated total for given field
TOTFLD	%	X	Number of a given field for computing Tot/Avg
TOTFLDS	%		Number of fields to compute Total & Average
WRTDATA	%		Data being assembled & written to seq. file
X	%		Used with INPUT\$
Y	%		Counter FOR X=n TO n

This program module should be entered as "COMPUTE.BDB"

```

10 REM COMPUTE SEGMENT OF BASIC DATABASE
(C) 1985 BY F DUTTON Houston, TX
20 CLS:LOCATE 1,24:PRINT "COMPUTE NUMERIC FIELDS FUNCTION":
LOCATE 3,11:PRINT "A Formula for the Computation to be
made Must Now Be Entered":LOCATE 5,1:PRINT "Enter as -->
[FieldNumber]=Operand Operator Operand":LOCATE 6,1
30 PRINT "Operand may be numeric or, if enclosed in [ ], a
Field Number. NO FIELD NAMES:PRINT "EXAMPLE: [7]=[3]*
[12]/100 Field 7 = Field 3 times Field 12 divided by 100"
40 LOCATE 9,1:PRINT ">> For list of field names/numbers
press 'F' - To continue without list 'C'"
50 X$=INPUT$(1):IF X$="F" THEN 60 ELSE IF X$="C" THEN 120
ELSE GOTO 50
60 CLS:FOR X=1 TO NUMFIELDS-1:Y=X MOD 3:
70 IF Y=1 THEN LOCATE INT(X/3)+2,1:PRINT X;FIELDNAME$(X)
80 IF Y=2 THEN LOCATE INT(X/3)+2,26:PRINT X;FIELDNAME$(X)
90 IF Y=0 THEN LOCATE INT(X/3)+1,53:PRINT X;FIELDNAME$(X)
100 NEXT X:LOCATE 23,1:PRINT "Press any key to return "
110 X$=INPUT$(1):IF X$="" THEN 110 ELSE GOTO 20
120 LOCATE 12,1:PRINT "ENTER FORMULA --> ":FUNCTION$=""
FORMULA$=""
FOR X=1 TO 60
130 X$=INPUT$(1):A=ASC(X$):IF A=8 OR A=13 THEN 140 ELSE
IF X$="" THEN 130
140 IF A=8 THEN LOCATE 12,POS(1)-1:X=X-2:LNTH=LEN(FORMULA$):
FORMULA$=LEFT$(FORMULA$,LNTH-1):GOTO 190
150 IF A=13 THEN X=60:GOTO 190
160 IF A=32 OR A=40 OR A=41 OR A=42 OR A=43 OR A=61 OR A=91
OR A=93 THEN CHEK=1
170 IF A>44 AND A<58 THEN CHEK=1
180 IF CHEK=0 THEN 130 ELSE CHEK=0:PRINT X$;
:FORMULA$=FORMULA$+X$
190 NEXT X
200 FOR X=1 TO LEN(FORMULA$)
210 A=ASC(MID$(FORMULA$,X,1))
220 IF A=32 THEN 260
230 IF A=91 THEN FUNCTION$=FUNCTION$+"RECDATA$(":GOTO 260
240 IF A=93 THEN FUNCTION$=FUNCTION$+"):GOTO 260
250 FUNCTION$=FUNCTION$+CHR$(A)
260 NEXT X
270 FOR X=1 TO 15
280 CHEK=INSTR(FUNCTION$,CHR$(36)):IF CHEK=0 THEN X=15:
GOTO 310
290 FLNO=VAL(MID$(FUNCTION$,CHEK+2,2))
300 MID$(FUNCTION$,CHEK,1)=FIELDTYPE$(FLNO)
310 NEXT X
320 CLS:LOCATE 10,1:PRINT FUNCTION$:LOCATE 15,1:PRINT "THIS
IS THE FINAL CALCULATION WHICH WILL OPERATE ON THE FILE
BEING CALCULATED": INPUT "READY TO PROCEED ? (Y or N) ",
ANSWER$
330 IF ANSWER$="N" THEN 20 ELSE IF ANSWER$<>"Y" THEN 320
340 CHEK=INSTR(FUNCTION$,CHR$(61))
350 IF ASC(MID$(FUNCTION$,CHEK-3,1))>47 THEN
EQFLD=VAL(MID$(FUNCTION$,CHEK-3,2)) ELSE
EQFLD=VAL(MID$(FUNCTION$,CHEK-2,1))
360 OPEN "O",#3,"FORMULA.BAS"
370 FUNCTION$="560 "+FUNCTION$
380 PRINT #3,FUNCTION$
390 LNTH=LEN(FUNCTION$):FUNCTION$=RIGHT$(FUNCTION$,LNTH-4)
400 FUNCTION$=LEFT$(FUNCTION$,CHEK-1)
410 IF FIELDTYPE$(EQFLD)="" THEN FUNCTION$="570 LSET
D$(EQFLD)=MK$( "+FUNCTION$+" ) ELSE IF FIELDTYPE$(EQFLD)=
"! " THEN FUNCTION$="570 LSET D$(EQFLD)=MK$( "+FUNCTION$+" )
420 IF FIELDTYPE$(EQFLD)="" THEN
FUNCTION$="570 LSET D$(EQFLD)=MK$( "+FUNCTION$+" )
430 PRINT #3,FUNCTION$:CLOSE #3:
CHAIN MERGE "FORMULA.BAS",440,ALL

```

```

440 KILL "FORMULA.BAS"
450 FOR RECNO=1 TO NUMRECS:GOSUB 480:GOSUB 550
460 NEXT RECNO
470 CLS:LOCATE 12,28:PRINT "NO MORE RECORDS IN FILE":
FOR X=1 TO 1000: NEXT X:CLOSE:CHAIN "DB.BDB"
480 REM ***** GET RECORD AND READ *****
490 GET #1,RECNO
500 FOR X=0 TO NUMFIELDS-1:RECDATA$(X)=D$(X)
510 IF FIELDTYPE$(X)="" THEN RECDATA$(X)=CVI(RECDATA$(X))
ELSE IF FIELDTYPE$(X)="!" THEN RECDATA$(X)=CVS(RECDATA$(X))
ELSE IF FIELDTYPE$(X)="N" THEN RECDATA$(X)=CVD(RECDATA$(X))
520 NEXT X
530 IF RECDATA$(0)<>"U" THEN RECNO=RECNO+1:
IF RECNO=NUMRECS THEN 490
540 IF RECNO=NUMRECS THEN 470 ELSE RETURN
550 REM ***** MAKE CALCULATION - WRITE RESULT TO RECORD ***
560 REM >>>> CALCULATION - FUNCTION
570 REM >>>> LSET STMT - DATA TO BUFFER
580 PUT #1,RECNO:RETURN

```

```

This program module should be entered as "DB.BDB"
10 DIM SELECT$(14):STAR$=STRING$(80,126):SIDE$=""*SPACE$
(78)+""*: SELECT$(1)=" Create New File":SELECT$(2)=
" Enter Data to File": SELECT$(3)=" Review/Revise Records":
SELECT$(4)=" Search - Select Records":SELECT$(5)=
" Write Sequential File"
20 SELECT$(6)=" Project Records in File":SELECT$(7)=
" Compute File - Tot. & Avg.":SELECT$(8)=" Compute File
by Fields": SELECT$(9)=" List Records to CRT or Printer":
SELECT$(10)=" List Records - Columnar Output":SELECT$(11)=
" Sort File"
30 SELECT$(12)=" Empty File":SELECT$(13)=" Save Result Set":
SELECT$(14)=" Finished":DIM D$(18):DIM DAT$(6)
40 CLS:PRINT STAR$:FOR X=2 TO 22:LOCATE X,1:PRINT SIDE$:NEXT:
PRINT STAR$:LOCATE 8,29:PRINT "BASIC DATABASE PROGRAM":
LOCATE 12,8: PRINT "Written in Z-Basic (MICROSOFT BASIC)
on Zenith Z-100 (MS-DOS)"
50 LOCATE 16,16:PRINT "COPYRIGHT (C) 1985 by Frank Dutton,
Houston, TX":FOR X=1 TO 1000:NEXT
60 CLS:PRINT STAR$:FOR X=2 TO 22:LOCATE X,1:PRINT SIDE$:NEXT:
PRINT STAR$:LOCATE 5,1:PRINT STAR$:LOCATE 3,28:
PRINT "MASTER OPERATIONS MENU"
70 Y=1:FOR X=9 TO 15:LOCATE X,5:PRINT Y;SELECT$(Y):Y=Y+2:NEXT:
Y=2: FOR X=9 TO 15:LOCATE X,44:PRINT Y;SELECT$(Y):Y=Y+2:
NEXT:LOCATE 20,18:INPUT "NUMBER OF OPERATION DESIRED IS: ";
OPER: IF OPER < 1 OR OPER > 14 THEN 60
80 ON OPER GOTO 100,210,210,210,210,210,210,210,210,210,
210,210,90
90 END
100 CLEAR:CHAIN "CREATE.BDB"
110 CHAIN "ENTER.BDB",10,ALL
120 CHAIN "REVISE.BDB",10,ALL
130 CHAIN "SELECT.BDB",10,ALL
140 CHAIN "WRT.BDB",10,ALL
150 CHAIN "PROJECT.BDB",10,ALL
160 CHAIN "TOT-AVG.BDB",10,ALL
170 CHAIN "COMPUTE.BDB",10,ALL
180 CHAIN "OUTPUT.BDB",10,ALL
190 CHAIN "LIST.BDB",10,ALL
200 CHAIN "SORT.BDB",10,ALL
210 REM ***** OPEN .FRM .DAT .DEF FILES - GET DATA TO PASS
220 FILENAME$=""
230 IF OPER=14 THEN LOCATE 10,1:PRINT ">>>> INSERT NAME
THAT RESULT FILE IS TO BE SAVED AS <<<<<":
240 LOCATE 12,1:PRINT"NAME OF FILE TO ACCESS IS : _____":
LOCATE 12,30:FOR X=1 TO 8
250 X$=INPUT$(1):IF ASC(X$)=8 THEN LOCATE 12,POS(1)-1 ELSE
IF ASC(X$)=13 THEN X=8:GOTO 270 ELSE IF ASC(X$)=32 OR
ASC(X$)=122 THEN 250 ELSE FILENAME$=FILENAME$+X$:PRINT X$;
260 IF ASC(X$)=8 THEN X=(X-2):LNTH=LEN(FILENAME$):
FILENAME$=LEFT$(FILENAME$,LNTH-1)
270 NEXT X
280 LOCATE 15,1:PRINT SPC(79):LOCATE 15,1:
PRINT "FILE TO ACCESS IS : ";FILENAME$: " OK (Y or N) ";
290 INPUT ANSWER$:IF ANSWER$="N" THEN 220 ELSE
IF ANSWER$<>"Y" THEN 280
300 IF OPER=13 THEN GOTO 610
310 IF OPER=12 THEN 580
320 OPEN "I",#1,FILENAME$+".FRM":DIM FORMAT$(22)
330 FOR X=1 TO 22:INPUT #1,DAT$:FORMAT$(X)=DAT$:NEXT X:CLOSE
340 OPEN "I",#1,FILENAME$+".DEF":NUMFIELDS=0
350 IF EOF(1) THEN 380
360 INPUT #1,DAT$(1),DAT$(2),DAT$(3),DAT$(4),DAT$(5),DAT$(6):
NUMFIELDS=NUMFIELDS+1
370 GOTO 350
380 CLOSE:OPEN "I",#1,FILENAME$+".DEF"
390 DIM FIELDNAME$(NUMFIELDS):DIM FIELDLENGTH$(NUMFIELDS):
DIM FIELDTYPE$(NUMFIELDS):DIM FIELDBYTES$(NUMFIELDS):
DIM FIELDRW$(NUMFIELDS):DIM FIELDCLX$(NUMFIELDS)
400 FOR X=0 TO NUMFIELDS-1
410 IF EOF(1) THEN 440
420 INPUT #1,DAT$(1),DAT$(2),DAT$(3),DAT$(4),DAT$(5),DAT$(6)
430 FIELDNAME$(X)=DAT$(1):FIELDLENGTH$(X)=VAL(DAT$(2)):
FIELDTYPE$(X)=DAT$(3):FIELDBYTES$(X)=VAL(DAT$(4)):
FIELDCLX$(X)=VAL(DAT$(5)):FIELDRW$(X)=VAL(DAT$(6))
440 NEXT X:CLOSE
450 RECLNGTH=0:FOR X=0 TO NUMFIELDS-1:
RECLNGTH=RECLNGTH+FIELDBYTES$(X):NEXT X
460 OPEN "R",#1,FILENAME$+".DAT",RECLNGTH:
NUMRECS=INT(LOF(1)/RECLNGTH)
470 FLSTMT$=""
FOR X=0 TO NUMFIELDS-1: FLSTMT$=FLSTMT$+
"+STR$(FIELDBYTES$(X))+ " AS D$( "+STR$(X)+" )": NEXT X:
FLSTMT$="510 FIELD #1"+FLSTMT$
480 OPEN "O",#2,"FLSTMT.BAS":PRINT #2,FLSTMT$:CLOSE #2
490 CHAIN MERGE "FLSTMT.BAS",500,ALL
500 KILL "FLSTMT.BAS"
510 REM >>>> FIELD STATEMENT
520 DIM RECDATA$(NUMFIELDS):DIM RECDATA#(NUMFIELDS)
530 IF NUMRECS>1 THEN NUMRECS=NUMRECS-1 ELSE IF NUMRECS=0
AND OPER<2 THEN CLOSE:CLS:PRINT "NO RECORDS IN FILE":
FOR X=1 TO 1000:NEXT X: CLEAR:GOTO 10
540 IF NUMRECS=0 AND OPER=2 THEN 560 ELSE GET #1,NUMRECS
550 IF D$(0)<>"U" AND D$(0)<>"D" THEN NUMRECS=NUMRECS-1:
GOTO 540
553 IF NUMRECS>0 THEN GET #1,NUMRECS ELSE GOTO 560
554 IF D$(0)="" OR D$(0)="" THEN NUMRECS=NUMRECS+1:
GOTO 553 ELSE NUMRECS=NUMRECS-1
560 ERASE SELECT$
570 ON OPER GOTO 100,110,120,130,140,150,160,170,180,190,
200,10,10,90
580 REM ***** EMPTY DATA FILE *****
590 KILL FILENAME$+".DAT"
600 GOTO 40
610 REM ***** SAVE RESULT FILE *****
620 NAME "RESULT.DEF" AS FILENAME$+".DEF"
630 NAME "RESULT.FRM" AS FILENAME$+".FRM"
640 NAME "RESULT.DAT" AS FILENAME$+".DAT"
650 GOTO 40

```

BASIC Data

Continued from page 146

screen format from the sequential file in which it is kept. The reason problems are encountered when the comma or double quote characters are inserted anywhere within the screen form (or for that matter, in any data entered to files) is that these characters are delimiters used by the files for separating the fields of a record. If they appear within the field it confuses the computer into believing that the field has ended and the next field has begun. Immediately following the closing bracket after the fieldname the user must enter a number of underlines (CHR\$(95)) to indicate the number of characters which may be entered to the field. If the field is to be alphanumeric (A) the number of underscores will be the field length; if the field is to be a date (D) there must be 8 underscores as date type data must be entered in the format of MM/DD/YY, this will result in a field length of 3 bytes due to the manner in which the data is stored; if the field is to be numeric the number of underscores is to be equal to the maximum number of digits which might be entered to the field plus one underscore for a decimal point (if applicable). For numeric fields on which calculations may later be performed the number of underscores should be enough to allow for the largest number which might result through the addition, division or multiplication of the field in question. Alphanumeric characters may be used on the form as headings or explanatory material and characters such as (CHR\$(42)) may be used for decorative purposes.

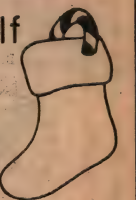
Following the creation of the form on screen the user will be asked to specify the type of each field as (A)lphanumeric, (D)ate, or (N)umeric. The program will fill in the number of print spaces and the number of

Continued on page 148

**A Great
Stocking
Stuffer!**

**COMPUTER
SHOPPER**

For yourself
or a friend
at
Special
Holiday Rates.
See Center



BASIC Data Continued from page 147

bytes required for the field. Alphanumeric fields require as many bytes as underscores; date fields require 3 bytes; numeric fields having 4 or fewer underscores are declared intergers and require 2 bytes while those having 5-7 underscores are declared as single precision numbers requiring 4

bytes and those having 8 or more underscores are declared double precision numbers and use 8 bytes of storage space. All underscores for a field must be on the same line as the field name and therefore the maximum length of any given field would be limited to 77 spaces. Because of the manner in which this program utilizes FIELD statements the number of fields per record is limited to

a maximum of 17. The maximum length of each record is 256 bytes of which one byte is used by the program to indicate whether a record is in use or has been deleted; the maximum record length available to the user, therefore is, 255 bytes.

After the form has been created and the fields defined the program creates two files which must be present for the

program to find in order to use the dataset. The form created is stored under the dataset filename with the extension '.FRM' and the definitions of the fields together with the number of bytes required for storage, row and column of screen position on form, and the number of print spaces is stored under the filename with the extension '.DEF'. If the

user wishes a printed output of the form or definition for a given dataset this is easily accomplished by going to the operating system and TYPEing the appropriate 'FILENAME.EXT' and the data, which is stored in ASCII characters will be output to the screen or printer depending whether the 'CTRL P' switch has been used.

NO SERVICE CHARGE
ON CREDIT CARD
UPS SHIPPING DAILY

GRAND OPENING SPECIAL!

SAVE UP TO 50%

DEALER / OEM / DISTRIBUTOR WELCOME

135W POWER SUPPLY

- GOOD FOR PC/XT & OTHER PC/XT COMPATIBLES
- SIDE ON-OFF SWITCH
- 4-DRIVE POWER PLUGS
- 110/220 VAC CONVERTIBLE

~~\$109.00~~

\$85.00

200W POWER SUPPLY

- GOOD FOR PC/AT
- SIDE ON-OFF SWITCH
- 4-DRIVE PLUGS
- 110/220 VAC CONVERTIBLE

~~\$199.00~~

\$159.00

IBM PC/XT FULLY COMPATIBLE MOTHERBOARD

- 8088 CPU WITH 8087 OPTIONAL
- WITH BIOS
- 8 I/O SLOTS
- OK, EXPANDABLE TO 256K ON BOARD
- SAME DIMENSION AS PC/XT

~~\$259.00~~

\$169.00

IBM PC/XT FULLY COMPATIBLE COMPUTER SYSTEM



- 8088 CPU WITH 8087 OPTIONAL
- BIOS, 256K ON BOARD
- 1 TEAC FD-55B SLIM DRIVES WITH CONTROLLER
- PC/XT FULLY COMPATIBLE KEYBOARD
- COLOR GRAPHIC CARD
- 135W POWER SUPPLY
- ASSEMBLED & TESTED

~~\$1099.00~~

\$699.00

- 512K RAM CARD (OK, EXPANDABLE TO 512K)..... 69.00
- PARALLEL PRINTER CARD..... 39.00
- GAME ADAPTOR (HANDLE 2 JOYSTICKS)..... 35.00
- IBM PC/XT FULLY COMPATIBLE MOTHER BOARD..... 49.00
- MONOCHROME GRAPHIC BARE BOARD (WITH PRINTER PORT)..... 34.00
- COLOR GRAPHIC BARE BOARD..... 24.00
- 384K MULTIFUNCTION BARE BOARD..... 34.00
- DISK CONTROLLER BARE BOARD..... 24.00
- TEAC FD-55B SLIM DRIVE (DS/DD, 360K)..... 99.00
- PANASONIC JA551-2 SLIM DRIVE..... 95.00
- 10MB HARD DRIVE WITH CONTROLLER..... 459.00
- 20MB HARD DRIVE WITH CONTROLLER..... 639.00
- QUIMAX COLOR MONITOR (13")..... 460.00
- QUIMAX MONO. MONITOR (13")..... 160.00
- 4164 64K DRAM (SET OF 9)..... 9.00
- JOYSTICK..... 25.00
- PRINTER CABLE..... 11.00
- DISK BOX (HOLD 50 DISKS)..... 11.00
- DISK BOX (HOLD 100 DISKS WITH LOCKABLE LID)..... 17.00
- DISK DRIVE CLEANING SYSTEM..... 33.00

MONOCHROME GRAPHIC PRINTER CARD

- WITH PRINTER PORT
- 80X25 TEXT MODE
- 720X348 RESOLUTION

~~\$155.00~~

\$109.00

COLOR GRAPHIC CARD

- TWO VIDEO PORTS
- RGB & COMPOSITE
- 640X200 RESOLUTION

~~\$109.00~~

\$79.00

384K MULTIFUNCTION BOARD

- OK, EXPANDABLE TO 384K
- SERIAL / PARALLEL PORT
- CLOCK / CALENDAR
- GAME ADAPTOR
- CABLES, SOFTWARE INCLUDED

~~\$145.00~~

\$119.00

FLOPPY DISK CONTROLLER

- STANDARD DS/DD
- RUNS 2 INTERNAL & 2 EXTERNAL WITH CABLE

~~\$75.00~~

\$49.00

FLIP TOP CASE

- 8 SLOT BACK PANELS
- SIDE ON-OFF SWITCH
- MOUNTING BRACKET & HARDWARE INCLUDED

~~\$79.00~~

\$59.00

AT CASE

- IBM PC/AT IDENTICAL DIMENSION
- HARDWARE INCLUDED

~~\$145.00~~

\$119.00

XT KEYBOARD

- BIG RETURN & SHIFT KEYS
- LED FOR CAP & NUM LOCKS

~~\$119.00~~

\$75.00



TINMA COMPUTER

13151 BROOKHURST ST., GARDEN GROVE, CA 92643

ORDER HOT LINE: (714) 636-7060

IBM, IBM PC/XT & PC/AT ARE TRADEMARKS OF IBM CORP.

BUSINESS HOURS:

Mon - Fri 9 AM-6 PM Sat 10 AM-5 PM

TERMS:

- NO SERVICE CHARGE ON VISA MASTERCARD
- PERSONAL & COMPANY CHECK ALLOW 10 DAYS TO CLEAR
- CASH ADD \$3.00 CASHIER'S CHECK / MONEY ORDER ONLY
- ADD 3% FOR SHIPPING; MIN \$5.00
- CALIFORNIA RESIDENTS ADD 6% SALES TAX
- 90 DAY WARRANTY
- ALL RETURNS MUST BE AUTHORIZED
- PRICE SUBJECT TO CHANGE

This program module should be entered as "CREATE.BDB"

```
10 REM FILE CREATION SEGMENT OF BASIC DATABASE -
(C) 1985 BY F DUTTON Houston, TX
20 CLEAR: DIM FORMAT$(22): DIM RTBRKTS(22): DIM LFTBRKTS(22)
30 CLS: LOCATE 23, 3:
PRINT "Create Form Above Maximum 22 Lines
To End Press (CTRL E)": LOCATE 1, 1
40 X$=INPUT$(1): IF ASC(X$)=5 THEN 60 ELSE PRINT X$;
50 GOTO 40
60 FOR X=1 TO 22: FOR Y=1 TO 80: FORMAT$(X)=FORMAT$(X)+
CHR$(SCREEN(X,Y)): NEXT Y: NEXT X: CLS: FOR X=1 TO 22:
PRINT FORMAT$(X): NEXT X
70 LOCATE 23, 15: INPUT ">>>>" IS FORM SHOWN ABOVE
OK (Y or N) : ANSWER$
80 IF ANSWER$="N" THEN ERASE FORMAT$:
GOTO 10 ELSE IF ANSWER$="Y" THEN 70
90 FILENAME$="": CLS: LOCATE 10, 15: PRINT "ENTER BELOW THE NAME
OF THE FILE YOU HAVE CREATED": LOCATE 12, 36: PRINT STRING$(
8, 95): LOCATE 12, 36: FOR X=1 TO 8
100 X$=INPUT$(1): IF ASC(X$)<32 OR ASC(X$)>122 THEN 100 ELSE
FILENAME$=FILENAME$+(X$): PRINT X$;
110 NEXT X
120 LOCATE 15, 13: PRINT "FILE IS TO BE OPENED AS "; FILENAME$;
" OK (Y or N) ";
130 INPUT ANSWER$: IF ANSWER$="N" THEN 90 ELSE
IF ANSWER$="Y" THEN 120
140 OPEN "O", #1, FILENAME$+".FRM": FOR X=1 TO 22:
WRITE #1, FORMAT$(X): NEXT X: CLOSE
150 CLS: LOCATE 12, 36: PRINT "Working!": FOR X=1 TO 22:
LFTBRKTS(X)=0: RTBRKTS(X)=0: NEXT X: FOR X=1 TO 22:
FOR Y=1 TO 80: IF MID$(FORMAT$(X), Y, 1)=CHR$(123) THEN
LFTBRKTS(X)=LFTBRKTS(X)+1 ELSE IF MID$(FORMAT$(X), Y, 1)=
CHR$(125) THEN RTBRKTS(X)=RTBRKTS(X)+1
160 NEXT Y: NEXT X
170 FOR X=1 TO 22: CHEK=LFTBRKTS(X)-RTBRKTS(X): IF CHEK<0
THEN LOCATE 12, 23: PRINT "UNMATCHED BRACKETS FOUND IN LINE "
; X: LOCATE 14, 24: PRINT "YOU MUST NOW RE-CREATE THE FORM":
LOCATE 18, 27: PRINT "Strike any key when ready"
180 IF CHEK<0 THEN X$=INKEY$: IF X$="" THEN 180 ELSE 20
190 NEXT X: NUMFIELDS=0: FOR X=1 TO 22: NUMFIELDS=NUMFIELDS+
LFTBRKTS(X): NEXT X: DIM FIELDNAMES$(NUMFIELDS): DIM
FIELDLNGTH$(NUMFIELDS): DIM FIELDTYPES$(NUMFIELDS): DIM
FIELDBYTES$(NUMFIELDS): DIM FIELDCOL$(NUMFIELDS):
DIM FIELDROW$(NUMFIELDS)
200 FLDNUMB=0: FOR X=1 TO 22: CLS: LOCATE X, 32:
PRINT "Still At Work !": FOR Y=1 TO 80
210 LNT=LEN(FORMAT$(X)): IF LEFT$(FORMAT$(X), 1)=CHR$(123)
THEN FORMAT$(X)=RIGHT$(FORMAT$(X), LNT-1): GOTO 290
220 FIELDEN=INSTR(FORMAT$(X), CHR$(125)): IF FIELDEN=0 THEN
LOCATE 12, 1: PRINT "ERROR IN LINE "; X: " FORM MUST BE
RE-CREATED": LOCATE 15, 27: PRINT "Strike any key when ready"
230 IF FIELDEN=0 THEN X$=INKEY$: IF X$="" THEN 230 ELSE
ERASE FIELDNAMES$, FIELDLNGTH$, FIELDTYPES$, FIELDBYTES$,
FIELDCOL$, FIELDROW$: GOTO 20
240 FLDNUMB=FLDNUMB+1: FIELDRW$(FLDNUMB)=X: FIELDCOL$(
FLDNUMB)=FIELDEN+Y: FIELDNAMES$(FLDNUMB)=MID$(FORMAT$(X),
2, FIELDEN-2): FIELDLNGTH$(FLDNUMB)=0: COUNTER=1
250 IF LFTBRKTS(X)>1 THEN RTBRKTS(X)=RTBRKTS(X)-1: FIELDCOL$(
FLDNUMB)=FIELDCOL$(FLDNUMB)-(LFTBRKTS(X)-RTBRKTS(X))+1
260 IF LEN(FIELDNAMES$(FLDNUMB))>15 THEN
FIELDNAMES$(FLDNUMB)=LEFT$(FIELDNAMES$(FLDNUMB), 15)
270 IF MID$(FORMAT$(X), FIELDEN+COUNTER, 1)=CHR$(95) THEN
FIELDLNGTH$(FLDNUMB)=FIELDLNGTH$(FLDNUMB)+1:
COUNTER=COUNTER+1: GOTO 270
280 Y=Y+1: FORMAT$(X)=RIGHT$(FORMAT$(X), LNT-1)
290 NEXT Y: NEXT X
300 CLS: LOCATE 1, 16: PRINT ">>>>" DEFINE FIELD TYPES.
BELOW <<<<<<: LOCATE 2, 14: PRINT "A = Alphanumeric N =
Numeric D = Julian Date": LOCATE 4, 1
310 PRINT " # Field Name Field Type Field Length
in Bytes Print Spaces"
320 FOR X=1 TO NUMFIELDS
330 LOCATE X+5, 1: PRINT X; TAB(6); FIELDNAMES$(X); LOCATE X+5, 24:
INPUT FIELDTYPES$(X): IF FIELDTYPES$(X)="" THEN "A" AND FIELDTYPES$(
X)="" AND FIELDTYPES$(X)="" THEN
LOCATE X+5, 1: PRINT SPC(80): GOTO 330
340 IF FIELDTYPES$(X)="" THEN FIELDBYTES$(X)=FIELDLNGTH$(X)
ELSE IF FIELDTYPES$(X)="" THEN FIELDBYTES$(X)=3
350 IF FIELDTYPES$(X)="" THEN IF FIELDLNGTH$(X)<5 THEN
FIELDBYTES$(X)=2: FIELDTYPES$(X)="" : GOTO 380
360 IF FIELDTYPES$(X)="" THEN IF FIELDLNGTH$(X)<8 THEN
FIELDBYTES$(X)=4: FIELDTYPES$(X)="" : GOTO 380
370 IF FIELDTYPES$(X)="" THEN FIELDBYTES$(X)=8:
FIELDTYPES$(X)=""
380 LOCATE X+5, 45: PRINT FIELDBYTES$(X): LOCATE X+5, 65:
PRINT FIELDLNGTH$(X)
390 NEXT X
400 RECLNGTH=1: FOR X=1 TO NUMFIELDS: RECLNGTH=RECLNGTH+
FIELDBYTES$(X): NEXT X
410 PRINT: PRINT "Number of fields per record = "; NUMFIELDS:
PRINT "Number of bytes per record = "; RECLNGTH: PRINT "
420 IF RECLNGTH>256 THEN PRINT ">>>>" RECORD LENGTH
EXCEEDS 256 BYTES !!: PRINT TAB(5); ">>>>" THIS IS NOT
ALLOWED - MAXIMUM LENGTH IS 255 BYTES: PRINT TAB(10);
">>>>" SELECT OPTION (D) Re-Define Fields (C)
Re-Create File ";
430 IF RECLNGTH>256 THEN INPUT ANSWER$: IF ANSWER$="D" THEN
GOTO 300 ELSE IF ANSWER$="C" THEN FIELDEN=0:
PRINT "Strike any key when ready": GOTO 230 ELSE GOTO 420
440 INPUT "Definitions OK (Y or N) "; ANSWER$: IF ANSWER$="N" THEN
300 ELSE IF ANSWER$="Y" THEN 440
450 FIELDNAMES$(0)="SYSTFIELD": FIELDLNGTH$(0)=1: FIELDTYPES$(
0)="" : FIELDBYTES$(0)=1: FIELDCOL$(0)=0: FIELDRW$(0)=0
460 OPEN "O", #1, FILENAME$+".DEF": FOR X=0 TO NUMFIELDS: WRITE
#1, FIELDNAMES$(X), FIELDLNGTH$(X), FIELDTYPES$(X), FIELDBYTES$(
X), FIELDRW$(X), FIELDCOL$(X): NEXT X: CLOSE
470 OPEN "R", #1, FILENAME$+".DAT", RECLNGTH: CLOSE
480 CLEAR: CHAIN "DB.BDB"
```


The Silver Box

Continued from page 143

with noise somewhat comparable to my circular saw. (I don't know how many of you are annoyed by it. If many of you want to reduced the stepping noise, I will find a solution for you. By the way, I wrote in the September issue about reducing the head loading noise with a piece of teflon adhesive tape which is not easy to come by. A small piece of Teflon with adhesive on one side for this modification is yours for asking with a SASE for the first 100 people who write to Sanyo Column care of *Computer Shopper*.)

Now, my Mitsubishi drive gets a portion of the best polished disks I have and it has stopped complaining altogether after a flirting episode in the IBM Clone, but only if it was placed closest to the motherboard connection. This requirement created a little problem. All my other computers have drive A on the left and the high capacity drive B on the right. With Mitsubishi, handling of disks became a conscious effort.

Power Requirements: +5V 0.5A, +12V 0.5A

Options: DS0, DS1, DS2, DS3, MX, HS, HM, HC, MM, MS, H1, H2, H3, R2, R3, R4, total 16 jumper options.

DS0 to DS3: For select setting. DS0 is for Drive A, DS1 is for Drive B. Do not use MX (constant select), keep it open.

Note: Pull-up resistors in this model are connected by eight Berg jumper plugs. Remove them since this drive will be placed in the middle.

HS: Jumper this option. (Heads are loaded when select and if READY line is active.)

HM: Keep this open. (Heads loaded when MOTOR-ON signal is active.)

HC: Keep this open. (Heads loaded all the time.)

MM: Jumper this option. (Motor on if MOTOR-ON signal is active.)

MS: Keep this open. (Motor on when select. This option is useful in an IBM Clone.)

H1: Jumper this option. (Heads are loaded when the internal READY signal of the type selected by Rn jumper is active. This is a good option to conserve head life. This jumper physically connects the H option wire, the head load signal

Continued on page 152



Call for Latest Prices!!!

**PLUG IN BOARDS
FOR
IBM™ PC**

**now 2 Year
Exchange Warranty**

DEALER & OEM DISCOUNTS AVAILABLE

OWL-WARE PRICE LIST: High Volume Users!!!

GRAPHICS BOARDS

Color Graphics Card \$99.

A multi-display card with RGB color, mono composite, color composite and light pen ports.

Mono-chrome Graphics \$145.

A high res mono board (TTL) with a parallel port.

MULTI-FUNCTION CARDS

MF-100A \$139.

Ser, par, real-time clock, game port, 0-384K. Comes with clock, ramdisk and printer software.

MF-640 (Available Now) \$165.

As above with 0-640K memory installable using combinations of 64 and 256K chips.

IO-100 \$109.

Ser, par, real-time clock on a very short card (5 1/2 inches). Comes with above software.

MEMORY CARD

Memo-576 (New and Neat!!!) \$79.

A very nice 5 1/2 inch card which will hold up to 3 rows of chips and up to 2 of these may be 256K chips for a total of 576K fitting in the smallest slot of the PC.

CONTROLLER CARDS

FDDA-100 \$69.

A floppy drive controller for 4 drives.

HDC-1000 \$165.

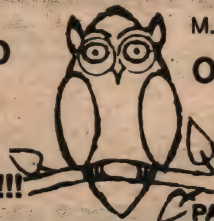
Hard drive controller with switches to configure the drives without changing the EPROM. Will handle 2 drives which may be different capacities and brands.

DISK DRIVES...1 Year Warranty!!!

TEAC DS,DD \$95. TEAC DS, QD \$95.

**New
EPSON DS,DD
\$89.**

**Very low
power
requirements!!!**



M.C. & VISA Accepted

OWL-Services

P.O. Box 116

Mertztown, PA

19539

PA Res. Include 6% Tax

PA (215) 682-6855

TOLL FREE ORDER LINE (800) 245-6228



DATA TECH
DISKETTES

5 1/4" • Lifetime Warranty

	1box	2boxes	3boxes
Single Side Single Den.	12.00	11.00bx.	10.00bx.
Single Side Double Den.	14.00	13.00bx.	12.00bx.
Double Side Double Den.	15.00	14.00bx.	12.50bx.

IBM "AT" DOUBLE SIDE 96/100 TPI 42.00 box of 10
DISKS HIGH DENSITY 77/80 Tracks

8" →	Single Side Double Den.	17.00 bx. of 10	Double Side Double Den.	23.00 bx. of 10
------	----------------------------	--------------------	----------------------------	--------------------

★ Authorized Wabash Distributor

PC Compatable Kit

• PC/XT BOARD w/256K • DISK CONT. CARD
• 135w POWER SUPPLY • DISK DRIVE (1)
• COLOR GRAH. CARD • FLIP TOP CASE
• KEYBOARD 695.00

ATTN: DEALERS

PROTO PC INC.

**YOUR BEST SOURCE FOR
DRIVES, RAM, CARDS, CAD & SERVICE!**

Proto PC offers the experience, reliability, and innovation you need to advance your business.

TAKE ADVANTAGE OF THE BEST WARRANTY AVAILABLE
We back our hardware. FULL ONE YEAR WARRANTY
WE'LL MAKE IT WORK FOR YOU!

TRUST OUR REPAIRS
We offer a complete repair facility and 10 YRS EXPER
WE SPECIALIZE IN IBM PC/XT AND COMPATIBLE!

BUY AT OUR LOW PRICES
We're committed to QUALITY PRODUCTS at
COMPETITIVE PRICES. CALL US FOR LATEST QUOTES!

MAKE THE MOST OF OUR PROMPT SERVICE
We ship same day on stock items.
FREE SHIPPING ON PREPAID ORDERS!

ASK ABOUT OUR OUTSTANDING QUANTITY DISCOUNTS!

CALL FOR LATEST QUOTES!

CAD

HARDWARE

RETAIL

ARTIST 1-1024 x 768, 16 Color, FAST!

\$2295

ARTIST 2-640 x 400, 16 Color, FAST!

1395

ROLAND

MONITORS

GREEN MONOCHROME 720x348 TTL

\$225

COLOR 720x400! RGB VERY NICE

795

PLOTTER

PLOTTER 11x17, FAST, HP COMPAT, 8 PEN 1695

TERMS:

PRICES LISTED Reflect Cash Discount For PREPAID or COD Cash/Cashiers Check. Personal/Business
Checks - 2 Weeks For Immediate Shipping. Telecheck - 3% Visa/Master Card - 4%

Proto PC inc.

SINCE 1976
CALL NOW!

612-644-4660

HRS. 9 to 6 Mthru f 2439 Franklin Ave. St. Paul, MN 55114 TLX: 910 380 7623

Dynamic RAM Sale!!

4164-150Ns.	4128-150Ns.	41256-150Ns.
9/ 9.00	4.95ea.	3.25ea.

IBM Peripherals:

PC/XT MOTHER BOARD: Fully IBM XT compatible 256K
Assem. & tested w/ Bios → 225.00

MULTIFUNCTION: Serial & parallel ports, clock/calendar
expandable to 384K → 145.00

RAM EXPANSION: Expandable to 512K → 85.00

POWER SUPPLY: 135 watts → 89.00

DISK CONTROLLER CARD: Controls 4 drives → 69.00

KEYBOARD: → 69.00

TEAC DRIVE: DS/DD, 360K, w/bracket, 1/2 in. → 95.00

COLOR GRAPHICS: → 99.00

CASE: Flip top → 75.00

ANKO: Joystick → 21.95

CABLE: Parallel Printer → 12.95

**Concord
Computer
Products**

Add \$3 Shipping & Handling
Visa & MasterCard Accepted

**2910 'B' E. La Palma
Anaheim, Ca. 92806
(714) 632-6790
(800) 435-0907**

Just For Fun
Continued from page 66

Picasso

Ah...I cannot hide my delight with this drawing program. First of all, of the three reviewed here, it is the only one which is written in mach-

ine language. That makes it fast. A beautiful picture of a ship which comes with the disk takes under 10 seconds to load. Freehand drawing is super fast. You can--and should--use a joystick, and if you don't have one, get one. I personally purchased (yes, purchased--

not a review freebie) Mich-Tron's Mach II joystick about half a year or more ago and have been quite happy with it. And yes, it does matter which joystick we Sanyo users buy. A Kraft joystick, fine for an Apple, may be continually read by the 550/555 printer port and interfere with word processing, so check first for compatibility!

Picasso is menu-driven with a sub-menu system which uses the function keys as well. I enjoyed using the zoom feature to "see the warts on the design"

up close if you know what I mean. You can evidently overlay pictures, do masking, inverting, color changing, switch pictures, and so much more from the simple graphic menu. Use Break or Esc to get back to the previous level or undo entry into a sub-menu (much as with Lotus 1-2-3, a favorable comparison merited by such pleasant software).

You can mix colors so as to create almost unlimited variants of shade, hue and tint, but I'll have to take Mich-

Tron's word on that score until next month. You can form patterns, insert text, form polygons, and more. One really fun thing to do is use the "rubber band graphics" to instantly move objects around, stretch or shrink them, and so on. An on-screen indicator shows cursor position and memory available (again, kind of reminiscent of a spreadsheet).

The documentation is easy to understand and very well done. I do not offer that compliment lightly, for I am usually bothered by the spelling and grammatical errors found in MichTron's ads and sometimes its documentation. Speaking of which, it is a small spiral book of several dozen pages.

Due to the copy protection issue, MichTron has a policy regarding replacing of defective disks for a nominal sum. That is not my one criticism, however. It is the apparent absence of an undo or unerase command. Sure, you can save pictures at intermediate stages, but these gobble up disk space, and who wants to anyway? I am not sure whether it would even be possible to implement, but it would have been nice.

Of the three programs, I have had Picasso for the least amount of time, yet I im-

Continued on page 151

MIRAC RS232 ANALOG CONVERTER BOARDS

Z8-65 RS232 interface with daisy chain feature. Software clock--no battery. 8 channel 8 bit A/D converter (0-5V). 12 digital (TTL) I/O control lines. Simple ASCII control commands. \$245

Z8-65A Same specifications as Z8-65 except the A/D converter is a 4 line 12 bit unit. \$362

Z8-45 RS232 interface with daisy chain feature. Hardware real time clock with backup battery. 16 channel 12 bit A/D converter (+-5V). Software settable gain amplifier for A/D. Simple ASCII control commands. \$451

Z8-65D Same as Z8-65 described above but has an interface for DORIC series 400 Trendicators. Thermocouple and temperature readings available to host through simple ASCII commands. \$442

Z8-65AD Same as Z8-65A described above but has DORIC series 400 Trendicator interface. Up to 8 DORIC units can be connected to one Z8-65D or one Z8-65AD for an additional cost of \$165 per DORIC. \$559

MIRAC provides Hardware and Software Solutions for Industry

MIRAC

"Just Short of a Miracle"

4115 Edwards Road, Suite #6 • Cincinnati, Ohio 45209
(513) 731-0800 • (513) 731-1154

NATIONWIDE TOLL FREE RESPONSE CENTER

GIVE YOUR COMPUTER PRODUCTS THE COMPETITIVE EDGE THEY DESERVE!

YOUR OWN TOLL FREE 800 NUMBER INCLUDING A 24 HOUR, 7 DAY A WEEK RESPONSE CENTER TO RECEIVE YOUR CALLS.

ALL FOR AS LITTLE AS \$65.00 A MONTH!

- MESSAGES - SALES LEADS - ORDERS - WE PROVIDE THE VITAL LINK BETWEEN YOU AND YOUR CUSTOMERS!

1-800-821-5226

ACTION 800 TELESERVICES

SOURCE FOR:

Computer Hardware & Software

Photographic Equipment

Video Equipment



BUYING, SELLING, TRADING - NEW & USED EQUIPMENT

Yes! I want to find the best bargains. Enter my one year subscription to the following
PATCH PUBLISHING CO., INC. MAGAZINE/SHOPPER:

- ☐ 1 Year (12 issues) **Computer Shopper** \$14.97
☐ 1 Year (12 issues) **Shutterbug** \$14.97
☐ 1 Year (12 issues) **Video Shopper** \$10.97

For faster service
call Toll Free
1-800-327-9926
In FL call 305-269-3211

GUARANTEE
If not completely satisfied with my subscription, I may cancel and receive a refund on any unmailed issues.

☐ Payment Enclosed - (check or money order)

☐ Bill Me

☐ Charge to VISA/MC Acct. #

Exp. Date _____ Signature _____

Name _____

Address _____

City _____

ST _____

Zip _____

Send to: Patch Publishing Co., Inc. • Circulation Dept. • P.O. Box F • Titusville FL 32781

patch publishing co., inc.

Offer Valid in USA only. Please allow 6 to 8 weeks for delivery of first issue. New subscribers only.

H311

Silent Paging System

Dottie Inc. of El Paso, Texas, has developed a PC-based silent paging system for hospitals, high-noise industrial areas, legislative chambers, and courtrooms.

This new electronic system uses LED-matrix moving message annunciators to display the name of the person being paged as well as instructions for answering the page. Because the system operates silently, it is especially well suited to installation in facilities where an audible paging system would be disruptive or annoying to the occupants of the area.

Dottie displays use bright red characters and graphic symbols to present moving messages in a style reminiscent of the old Times Square news display. A detachable keyboard, an 1800 character message memory, an internal time-of-the-day clock, and battery back-up for Dottie's internal message memory are standard features.

When the Dottie units are used as silent a paging system, the individual displays are installed at high traffic points and in meeting areas with the facility served. Paging messages and general announcements are electronically trans-

ferred to each display unit by an IBM-PC (or compatible equivalent). The messages and announcements are then continuously displayed by each Dottie unit until cancelled by the paging system operator.

All messages and announcements are controlled by the Silent Paging System software package. This IBM PC-compatible software package is provided by Dottie Inc. at no additional cost when five or more display units are purchased.

The individual Dottie displays are connected together in "daisy-chain" fashion. Each display has an RS-232 input port, a repeater circuit, and an output port. The entire chain of displays is fed from a single serial or RS-232 output port on the PC.

Dottie display units are available in five different models and sizes with character heights ranging from 1 to 4 inches. Dottie displays are priced from \$495 to \$1995 with substantial discounts for purchases of multiple units.

For more information contact Dottie Inc., 2813 North Yarbrough Drive, El Paso, TX 79925, (915) 594-4094.

Mention that you read about it in the *Computer Shopper*. •

Just For Fun

Continued from page 150

mediately decided it was my favorite. Although I have not devoted as much space as this product deserves--partly because I'm still learning how to use it to best advantage--and with so many features I haven't even mentioned, my enthusiasm for it should make clear my preference and my recom-

BASIC Data

Continued from page 146

ed commands in any depth.

Although this book could be considered a competitor to my *CBS Sanyo* book, I instead see it as a valuable additional resource. While there is considerable cross-over of information between my book and Weber's (since we are, after all, covering exactly the same subject), they make a great combination. I cover communications, hardware, and software (not addressed at all by Weber's book), and go into much greater depth in color and graphics. Weber's book puts more emphasis on optional parameters and technical details that my book omits.

I highly recommend this book to every Sanyo MBC 55X owner who has any intention of using Sanyo BASIC.

My book, *Sanyo MBC 550/555 Beginner & Intermediate Guide* (\$17.45) and disk (\$15) (or both together for \$30) are available from me, postpaid at the following address: Fred Blechman, 7217 Bernadine Avenue, Canoga Park, CA 91307.

Sanyo Basic User's Handbook as well as *Sanyo MBC 550/555 User's Handbook* and *Sanyo Business Software in Basic* are available from Weber Systems Inc., 8437 Mayfield Rd., Chesterland, OH 44026. Call (800) 851-6018 for the order desk. Each book is priced at \$17.95 plus \$2 shipping VISA/MC or check. •

MPI 1/2 HT. DRIVE NOW
DSDD 48TPI 40 TR. \$49.95

KNAPCO

2 DRIVES W/ENCLOSURE
AND POWER SUPPLY \$134.95

* NEW 3M WISPERWRITER *

TRENDCOM 200

High-Speed
Intelligent
Printer
10" \$44.95

• NEW \$49.95
• BUILT FOR LARGE OEM
• FULL PAGE THERMAL PRINTER
• 40 CHARACTERS PER SECOND
• CONTINUOUS GRAPHICS
• 80 CHARACTERS PER LINE UTILIZING
A FULL 96 CHARACTER ASCII SET
• FULL LINE BUFFER - BI DIRECTIONAL
• DATA & INFO INCLUDED

SMARTCAT MODEM 300/1200
WORKS IBM APPLE
W/SOFTWARE REG. \$189.50

BLOCK FANS
3" (XEROX PULLS) \$2.95
3" (NEW TORIN) \$5.95
4 1/2" (NEW) \$6.95 REG. \$14.95

MICROS
4164-150NS
NEC
MOT.
HIT. 100 PCS. \$70.00
41256-150NS \$3.95
4116 150 NS. 10 PCS. 59" 100 PCS 39"
SRAMS
2114 250 NS. 79" 9 \$5.95
6116 P-15 2.15 6116 LP-15 3.25
6264 LP-15 (1-12) \$6.50 (13) \$5.50
EPROMS
2708 13 pc. 99¢ EA.
2716 13 pc. 99¢ EA.
2532-45 FULL TUBES ONLY \$1.95
2732 A-4 \$2.95
2764 250 NS. \$3.50
27128 450 NS. \$7.95

KEC LINEAR SUPPLY
+5V. @ 13A.
+12V. @ 1.3A.
-12V. @ 1.8A.
\$34.95
5 1/2" x 9" 15 LBS. 3 \$99.95
MODULAR, ENCLOSED CASE
POWER SUPPLIES
POWER-ONE CP-412
+5V. @ 5A.
+12V. @ 5A.
-5V. @ 5A.
SPECIAL \$24.95
2 \$42.50

T.J. 743 TERMINALS
W/BUILT-IN PRINTER
KSR-743 \$389.00
W/THERMAL
PAGE SIZE PRINTERS
DIRECT TTY MODEM PORT

**SEND FOR
FREE
CATALOG**
MEDICAL EQUIPMENT
or call us at
(813) 392-0406

STAND BY POWER SUPPLIES
TRIPP LITE

SB200
SB400
SB1000

• 200 WATT * REG \$249, OUR PRICE \$199.
• 400 WATT * REG \$359 NOW \$269.
• 1000 WATT * REG \$699 NOW \$479.
• PLUGS INTO AC, CHARGES BATTERY,
LOAD SWITCHES ON DEMAND TO POWER
YOUR COMPUTER WHEN POWER FAILS.

UPS SYSTEMS W/BUILT-IN BATTERY
AND SPIKE FILTERING.
BC-200 * REG. \$359.00 OUR PRICE \$259.00
BC-425-FC * \$599.00 \$395.00
BC-1000-FC * REG. \$1179.00 NOW \$875.00

MOTOROLA PALLET LOAD 8" \$325.00
CRT DISPLAY MONITORS

• 15" green anti-glow \$16.75 kHz
screen
• High contrast filter • Separate sync
DS4003 P-39 \$49.95
PARADYNE PDS MONITOR WITH FULL
CABINET \$69.95 2 \$129.95

ELECTRA-POWER
SENTRY
ELIMINATES RFI AND SPIKES
• LEVITON 3 OUTLETS,
• OVERLOAD PROTECTED
W/INDICATOR
6" \$9.95
12" \$8.95 24" \$7.95

CORCOM RFI FILTERS
DUAL "R" EMI RFI FILTER
• 10R6 CORNELL-DUBLER
APPROX. \$1.99

INTECOLOR 8300
DEVELOPMENT
STATION
W/2 8" DRIVES
\$5000. SYSTEM (COLOR)
SPARES... \$695.00

LINE CONDITIONERS
LS-600 (5A) \$449.00 \$89.00
LC-1200 (10A) \$449.00 \$159.
LC-1800 (15A) \$449.00 \$219.
PREVENTS BROWN OUTS
LETTER QUALITY PRINTERS
QUME 9/55 SPRINT \$495.00
WERE \$495.
DISC DRIVE ENCLOSURE
ACCEPTS 2 1/2" x 5 1/4" x 6
FULL OR HALF \$17.25
HT. DRIVES AND
POWER SUPPLY. BY PARADYNE

CONNECTORS
MALE CENTRONICS
\$3.95 SOLDER CUP
100 CNTRS.
RIBBON CABLE
CARD EDGE
34 PIN \$2.59
40 PIN \$3.59
50 PIN \$3.95
RIBBON CABLE
"D" SUBS
25 PIN MALE \$4.25
FEMALE \$4.75
SOLDER CUP "D"
MALES \$1.95 FEMALES \$1.95

add 10% for shipping and handling min. shipping charge \$2.50
H.J. Knapp of Florida, Inc.
4750 96th St. N. St. Petersburg, Florida 33708 VISA

UWAGA!

Consumers of the world unite! Join the Howard Avenue Software Buyers Club. Pay only \$15.00 per year and reap huge benefits. Panasonic printers for \$240.00. Taxan 440 Monitors for \$520.00 or less. Good modems for \$130.00 for the Apple, slightly more for IBM and others. Diskettes with lifetime guarantee at \$0.47 in appropriate quantities.

Prices are determined by our cost plus about 6% plus UPS surface delivery. We distribute no catalogs. We have no 800 number. We will distribute flyers with sales values from one of the companies we represent.

Files will be kept for reference on various products and members may submit reviews on the products. Input from members will be solicited as to items selected. Firms wishing to do business with the club are urged to contact Howard Avenue Software. Prospective members do likewise. Registration is by letter or postcard stating Computer Choices, Name, Address, VISA or MasterCard Numbers (With Expiration Date.) \$15.00 enrollment fee must be included. All prices subject to change and availability.

BUYERS: We are currently accepting your bids on the following:

APPLE Starter Systems: Iie & Iie, MACINTOSH 128K & 512K, extra Drives & Accessories for all APPLES.
IMAGEWRITER & SCRIBE Printers.
IBM, COMPAQ, PANASONIC, SANYO, KAYPRO, NEC, ALTOS, NECHE, TELEVIDEO, ATARI & COM-
MODORE Computer Systems.
Monitors: AMDEK, TAXAN, RADICAL-VADIC, APPLE II, XTRON, PRAKTIKA, SUPER 5. Monitors available in color, green, amber, and b & w.

APPLE Iie, II DISKDRIVES
Half Heights SPECIAL PURCHASE - \$130.00
APPLE Iic - \$140.00
Columbia PCS Call For Special Pricing!

Harddisks: PROFILE, RANA, QUARK, SUPER 5, MINISCRIBE (APPLE & IBM versions.)
64K Ram Chips (Mosstek & others), Ramboards, 80 Column Cards.
DISK WORLD Diskettes, Printer Ribbons, Paper and Storage Cases at DISK WORLD Prices.
VCR's: PANASONIC, JVC, GE, and more.



MANY ITEMS ARE NOT LISTED, SO CALL OR WRITE.

CALL US: We have the FREE CBS SOFTWARE OFFER by ELEPHANT

135 W Power Supply - \$80.00, 150 W Power Supply - \$88.00, 200 W Power Supply - \$165.00, IBM PC/XT Comp Case - \$46.00, IBM PC/AT Comp Case - \$125.00, IBM Comp Keyboard - \$68.00, Monitor Stand (small) - \$9.50, Monitor Stand (large) - \$12.50, Diskette Storage Files - \$7.00, Floppy Controller Cards (IBM Comp) - \$55.00, Monochrome Video Cards W/Par Port - \$110.00, Motherboard W/64K, Ex to 256K - \$155.00, Floppy Disk Drives HH, DSDD - \$95.00, 6" Printer Cable - \$12.50.

Sample prices from one of our distributors and we have many more from coast to coast.

We have a long list of business software at prices we cannot advertise since they are so low. Our stuff is the latest version, usually MSDOS and consists of DBaseII, Accounting Partner and Accounting Partner II, Wordstar and more. We have also contracted for a quantity of IBM modems and will sell them at a savings of \$200.00 to club members. We can obtain quantity discounts on many IBM items and Apple computer items are our specialty.

BARGAINS OF THE MONTH

IBM PC Workalikes: Color Graphic Card, \$170.00. Six Function Card: Software, Printer, Spooler, Ramdisk, Serial and Parallel Ports, Clock Calendar, 384K, \$240.00. HERCULES Compatible Graphic Card: \$225.00. SEAGATE 20 meg Harddisk Drive W/Controller, \$570.00. Diskettes SSDD, .79, DSDD, .90.

GOOD SERVICE - Ask Our Satisfied Customers.

HOWARD AVENUE SOFTWARE

4639 WEST HOWARD AVENUE MILWAUKEE, WISCONSIN 53220
(414) 543-8972 - 24 Hours - 7 Days per Week - 365 - 366 Days per Year

The Silver Box Continued from page 149

line, to R option wire, the READY signal option line. Jumping this option creates a condition in which options H2 and R2, H3 and R3, have exactly the same results.)

H2 and R2: Jumper R2. (This option sends READY-CURRENT signal to READY signal line.)

H3 and R3: Keep these open. (The R3 option sends

HELD-READY signal which merely indicates the disk is in the drive to READY line.)

R4: Not used. Keep this open.

A Word Of Caution:

Do not measure the drive magnetic head with a multimeter, especially in RX1 range, nor short circuit the head leads to ground while power is on. This will magnetize the head and increase noise level when reading, and might produce lots of errors. The head should

be demagnetized if this happens.

As all the magnetic heads, it gets magnetized during use. It is not absolutely necessary but is a good practice to demagnetize the 96 tpi heads periodically once a year. The same demagnetizer for your hifi tape recorder can be used but just be careful not to damage the fragile head assembly in any way. If you do not have any idea how to do it, do it. You might damage the assembly.

The Power And The Silver Box

I will list current draw measurements of some drives in the next issue of *Computer Shopper* in the Bargain Drive Section together with more option description on a Panasonic drive.

Also, we should consider what it takes to operate one or two external 96 tpi drives. And about a new power supply for the MBC-550/555. This high efficiency switching power supply fits in the space vacated by the stock power supply and

have 5V 8A capacity, a jump of more than 2.5 times the current capability of the stock power supply, giving you a new freedom to use all the boards and drives.

(This particular power supply is presently supplied to a Fortune 500 company by our firm to power a UNIX machine. If you have any interest in finding more about this power supply, please contact me care of *Computer Shopper* with SASE. The model number of this power supply is #8010 and is UL approved. This is not a low cost power supply but covered by one year exchange warranty.)

Future Topics

More discussions on Bargain Drives, power supply experiments and serial communication problems will appear in the coming issues of the *Computer Shopper*, the fun magazine for the computer lovers. If you had any serial communication problems of your own, please present them by writing to this column, so that we can clear all of the serial problems in the future issues. I will present baud rate changers in BASIC and TP (Turbo Pascal), and a simple communication program in TP which switches baud rate automatically. I hope many readers have the access to the language.



7107 SOUTH 400 WEST
SUITE 3
MIDVALE UT. 84047
801-562-5008

PC JR. 2nd. DISK DRIVE

- 360 K
- 1.2 MEG.
- 10 MEG.
- 20 MEG.

COMPLETE PACKAGES INCLUDE:

• DRIVE • CASE • POWER SUPPLY

FROM: \$399.95 • CONTROLLER CARD • SOFTWARE

VISA - M.C. - CASHIERS CHECK



COMPUTERS	
IBM PC/XT - custom configurations, from	\$1599
IBM AT Basic	\$3159
COMPAQ Deskpro II	Call
DISPLAY CARDS	
Hercules Mono Graphics	\$295
Paradise Multidisplay	\$289
Paradise Module Graphics	\$265
Persyst Mono/Color	\$169/169
Persyst Bob	\$409
Quadram Quadcolor 1	\$205
Tecmar Graphics Master	\$469
MONITORS	
Amdek 300G	\$119
Amdek Color 500/600	\$319/409
PGS Max-12	\$179
PGS HX-12/SR-12	\$459/609
Taxan 121/122	\$139/149
Taxan 440	\$539
PRINTERS	
Citizen 10/20	\$309/439
Epson FX85/FX185	\$349/499
H.P. Laser Jet	\$2699

NEC 2050/3550	\$679/1069
Okidata ML 192/193	\$349/499
Panasonic 1092/3151	\$389/499
BOARDS & ACCESSORIES	
AST Six Pack Plus 64K	\$209
IBM Diskettes, DSDD	\$29.95
Kamerman Labs PC Supercharger	\$549
Kensington Masterpiece	\$99
Orchid Turbo	\$579
PC Jr Impulse, p. port, clock OK	\$189
Persyst Time Spectrum, 64K	\$199
Quadboard, OK/64K	\$179/190
STB RIO Plus II, 64K	\$185
Tecmar Captain, OK	\$179
Titan Accelerator	\$725
Everex Magic Card II	\$179
DISK DRIVES	
Alloy, PC-Stor, 20MB	\$2949
Bernoulli Box, 10MB/20MB	\$1849/2539
Corvus	Call
Kamerman Labs Masterflight	\$1589
Tandon TM 100-2, full height	\$95
Tandon TM 65-2L, half height	\$105
Turbo 10 Hard Disk	\$570

GEM ELECTRONICS
24 Carriage Drive, Oxford, CT 06483, 203-888-1867


USE CP/M DISKS IN YOUR IBM PC!

Read, Write, and Format over
70 Different CP/M and MS-DOS Disks
Only with
\$39.95! MEDIA MASTER™


Tired of hunting for software in your computer's disk format? Do you need to exchange your Lotus 1-2-3, dBase II, Multiplan, and Wordstar data files among different CP/M and MS-DOS computers? Then MEDIA MASTER is for you!

MEDIA MASTER is easy to use. You just LOG IN your "foreign" disk prior to copying files to or from another floppy or hard disk. Through simple menu steps you can also display directories and type, print, or erase files.

INTERSECTING CONCEPTS
4573 Heatherglen Ct.
Moorpark, CA 93021
805-529-5073



**ORDER
INFO**



Send \$39.95 + \$3.00 S/H (Calif. residents, please add 6%) or call toll free 24 hours:
800-824-7888
(Ask for Operator #251)

MEDIA MASTER supports the following disk formats:

Actrix (SSDD)	LNW-80 (SSDD)
Actrix (DSDD)	Lobo Max-80 (SSDD)
Avatar TC10 (DSDD)	Lobo Max-80 512 (SSDD)
Casio FP 1000 (DSDD)	Micral 9050 CP/M-80 (DSDD)
Chameleon CP/M-80	Morrow MD 11 (DSDD)
Columbia MPC CP/M-80	Morrow MD 2 (SSDD)
Cromemco CDOS (SSDD)	Morrow MD 3 (DSDD)
Cromemco w/Int'l Term (DSDD)	NCR Decision Mate 5 (DSDD)
Cromemco w/Int'l Term (SSDD)	NEC PC-8001A (SSDD)
DEC VT180 (SSDD)	NEC PC-8001A (DSDD)
Davidge (DSDD)	Olympia ETX II (SSDD)
Digilog (DSDD)	Olympia EX100 (DSDD)
Epson Multifont (DSDD)	Osborne (SSDD)
Epson QX-10 (DSDD)	Osborne 4 (DSDD)
Fujitsu Micro 16s (DSDD)	Osborne Osmosis (SSDD)
Group III CP/M (DSDD)	Otrona (DSDD)
H/Z Z-100 CP/M (DSDD) - later	PMC Micromate (DSDD)
H/Z Z-100 CP/M (SSDD)	Reynolds & Reynolds (SSDD)
H/Z Z-100 Z-DOS 1.xx (SSDD)	Sanyo CP/M (DSDD)
H/Z Z-100 Z-DOS 1.xx (DSDD)	Superbrain (DSDD)
H/Z Z-100 Z-DOS 2.xx (SSDD)	Superbrain Jr. (SSDD)
H/Z Z-100 Z-DOS 2.xx (DSDD)	Systel II (SSDD)
H/Z Z-90 40 trk, 1 k blk (SSDD)	Systel III (DSDD)
H/Z Z-90, 40 trk, 2 k blk (SSDD)	TI Professional CP/M-86 (DSDD)
Heath w/Magnolia CP/M (SSDD)	TRS-80 III FEC CP/M (SSDD)
IBM PC CP/M-86 (DSDD)	TRS-80 III FEC T805 (SSDD)
IBM PC CP/M-86 (SSDD)	TRS-80 III Hurr. Labs (SSDD)
IBM PC-DOS 1.xx (DSDD)	TRS-80 III Mem. Merch. (SSDD)
IBM PC-DOS 1.xx (SSDD)	TRS-80 IV CP/M + (SSDD)
IBM PC-DOS 2.xx (DSDD)	TRS-80 IV Mont. Micro (SSDD)
IBM PC-DOS 2.xx (SSDD)	Teletek 40 trk (SSDD)
IDEA Britelex (SSDD)	Toshiba T100 (DSDD)
ISM CP/M (DSDD)	TurboDos (DSDD)
Insight Dev. IQ-120 (SSDD)	Wang Maws CP/M (DSDD)
Kaypro II/2 (SSDD)	Xerox 820 II (SSDD)
*Kaypro 4, 10 (DSDD)	*Zorba 40 trk (DSDD)

*Requires access to "foreign" computer.

Media Master is also available for the DEC Rainbow, Zenith Z-100, Osborne and Kaypro computers.

GREAT PRICES! GREAT SERVICE!

IC's AT LOW, LOW - PRICES

74 SERIES

74XX	.20	74SXX	.25
741XX	.30	74S1XX	.35
743XX	.40	74S3XX	.45

74LSXX	.20	74ALSXX	.30
74LS1XX	.30	74ALS1XX	.35
74LS2XX	.40	74ALS2XX	.45
74LS3XX	.40	74ALS3XX	.45

74FXX	.25	74HCXX	.30
74F1XX	.35	74HC1XX	.35
74F2XX	.50	74HC2XX	.45
74F3XX	.50	74HC3XX	.45

74HCTXX	.30
74HCT1XX	.35
74HCT2XX	.45
74HCT3XX	.45



CMOS

Any 4000 series	.22 ea.
Any 4500 series	.35 ea.

ECL'S

Any 10K Logic	.75
---------------	-----

Z80 SERIES

2.5 MHZ

CPU, CTC, PIO	.75
DMA, DART, SIO	1.95

4.0 MHZ (A)

CPU, CTC, PIO	1.50
DMA, DART, SIO	3.95

6.0 MHZ (B)

CPU, CTC, PIO	2.50
DMA, DART, SIO	7.50

DIGITAL IC SPECIALS

Your Choice — .15 ea.

74LS00	74LS02	74LS08	74LS10
74LS11	74LS20	74LS30	74LS32
74LS03	74LS74	74LS109	

Your Choice — .19 ea.

74LS153	74LS157	74LS161	74LS166
74LS138	74LS139	74LS164	74LS174
74LS166	74LS175	74LS193	

Your Choice — .25 ea.

74LS240	74LS241	74LS244	74LS245
74LS257	74LS273	74LS279	74LS280
74LS283	74LS368	74LS367	74LS393
74LS373	74LS374	74LS377	



ADC/DAC

ADC08XX	1.95
DAC08XX	.95
DAC80	4.95
1408	.95

6500/6800 SERIES

ANY 65 XX	1.50
ANY 65XXA	2.00
ANY 65XXB	2.50
ANY 68XX	1.50
ANY 68AXX	2.00
ANY 68BXX	2.50
6810	.65



IBM CLONE COLUMN

Monochrome Graphic w/printer	125.00
Color Graphic Card	109.00
Floppy Disc controller w/cable	69.25
Printer Port	39.25
Serial Port	42.50

IBM™ ADD ON SPECIAL!!



IBM PC/XT
Compatible

"MAMA" BOARD

Exact IBM XT Replacement Bd.

• 81/0 Slots	w/parts less IC's
• 256K Memory	98.00 ea.
• 8088 CPU	• Tested Bd
• IBM Footprint P	w/256K
Connectors	
• Socketed Bd.	\$239.95 ea

"RAM SPECIALS"

DYNAMIC TYPES

16K —	16Kx1	200ns	.25
64K —	64Kx1	200ns	.59
64K —	64Kx1	150ns	.62
256K —	256Kx1	200ns	2.95
256K —	256Kx1	150ns	3.25

STATIC TYPES

2114-3	1Kx4	300ns	.29
2114-4	1Kx4	450ns	.25
2114-2	1Kx4	200ns	.32
6116P4	2Kx8	200ns	.95
6116P3	2Kx8	150ns	1.15
6264LP-15	8Kx8	150ns	4.75

E-PROMS

2708	1Kx8	450ns	.55
2716	2Kx8	450ns	.95
2716	2Kx8	350ns	1.25
2732	4Kx8	450ns	1.25
2732	4Kx8	350ns	1.45
2732	4Kx8	250ns	1.65
2764	8Kx8	450ns	1.75
2764	8Kx8	350ns	1.95
2764	8Kx8	250ns	2.25
27128	16Kx8	250ns	2.75
27256	32Kx8	250ns	7.95

MISCELLANEOUS IC SPECIALS

PAL16R4ACN	.65	KR3600	.95
WD1100	.95	LM339	.12
TM2016P2	.95	CD4013BE	.12
2651P2	1.50	CD4538BE	.12
D2118	.95	CD4011BE	.12
2148H	.65	CD4019BE	.12
2661P	.95	CD4030BE	.12
AM26LS31	.35	D4016-2	.95
AM26LS32	.35	TMS4050NL	.25
AM26S02	.45	TC5517APL	.95
MC8502P	.75	F93LO8	.95
8251	1.25	CRT9006	.95
8253	1.25	CRT9212	.95
8257	1.50	AM9128	.95
8259	1.50	F93L14PC	.49
8257	1.50	F9321 PC	.39
8272	1.35	75113	.35
TMS9927	.95	8080A	1.50
TMS9937	.95	8085	1.50

ELECTRONIC PARTS OUTLET

2515 N. Scottsdale Road
Scottsdale, AZ 85257

(SEND FOR OUR FREE CATALOGUE)
TOLL FREE!!

CALL (800) 245-8555 AZ - (602) 941-9357

NEW DISK DRIVES

Tandon

TM100-2	
Full Ht	\$89.95

MPI

501C-200	
SSDD 1/2 Ht	\$79.95

502B-100	
DSDD	\$99.50

Sanyo

FDA5200BPC	
DSDD-1/2 Ht DSDD	\$79.95

Qume

142	
DSDD-1/2 Ht	\$79.95

Mitsubishi

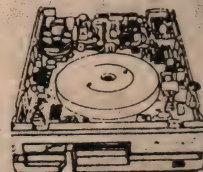
M4853	
1/2 Ht-96TPI	\$89.95

Shugart

Model 901	
	\$39.95

Apple II

5 1/4" Flexible Disk Drive	\$124.95
----------------------------	----------



APPLE II, II+, IIE, & IIC
COMPATIBLE AD-ON
DISK DRIVE



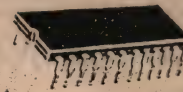
SURPLUS DISK DRIVES

****Cosmetically Fine****
May Need Head Alignment

Quantities Limited ****

MPI-52AS	\$24.95
Tandon 100-2A	\$44.95

FIRST COME - FIRST SERVED ****



★ BRAND NEW ★

GAME ROM CHIPS FOR THE ATARI COMPUTERS

10 Different Games such as:

The Wizard	Galactic Invader
Grand Prix	Star Battle
Zap	Maze
Panzer	Letter Match



YOUR CHOICE
\$.57 ea.

Please call for current prices. Prices subject to change. Please expect higher or lower prices on some parts due to supply and demand and our changing costs. Shipping and insurance extra. Orders received by 6PM can usually be delivered to you by the next morning, via Federal Express Standard Air @ \$6.00, or Priority One @ \$11.50.



7.5 MHZ Speed \$315.00w 64k Rams TURBO

- 8088 2 high speed on board CPU
- 8 slots
- 640k Max Mem.
- IBM Footprint
- Operating speed keyboard controlled

IBM
Compatible
Mother
Board

Traveling Software Introduces The Ultimate ROM For Portable Computers

Through a recent breakthrough in ROM technology, Traveling Software Inc. has introduced a ROM product that gives lap-sized portable computers unprecedented capabilities.

Using a process developed by Polar Engineering of Nikiski, Alaska, the Seattle-based company is now offering the Ultimate ROM, a single ROM chip

with three of the company's most popular programs for the Tandy Models 100 and 200 and the NEC PC-8201. The programs are IDEA!, an outline processor; T-base, a database management system; and T-Writer, a text formatter.

According to Mark Eppley, Traveling Software president, having the three Ultimate ROM programs in a portable

computer is comparable to having ThinkTank dBASE II and WordStar on an IBM PC.

"The Guardian" process developed by Polar Engineering allows portable computers to combine for the first time the capabilities of software applications on an installed ROM chip with those of the built-in Microsoft ROM software. "This ability is a major break-

through," says Eppley. "Microsoft spent many man-hours developing the 32K of ROM software built into these lap computers. Why not capitalize on this effort and make a 32K software chip with the power equal to a 64K chip?"

According to Eppley, the flexibility of IDEA! has made it one of the most popular programs for these computers.

Text is organized around outline headings and may be easily moved, sorted, copied, or printed either in part or as whole.

IDEA! and ThinkTank files can be used interchangeably through a new file-conversion program available from Traveling Software for \$19.95.

T-base is considered by many to be the most powerful database software for the Model 100/200 and PC-8201. A truly relational database, T-base can link up to eight data files, offers powerful search, sort and reporting functions, and can perform calculations between fields.

The Traveling Writer continues to be one of the most flexible and easy-to-use text formatters for the Model 100/200 and PC-8201. Its features include right-hand justification, headings, footers, centered text, automatic paging, adjustable margins (left, right, top and bottom) and much more.

Included with the Traveling Writer is T-Merge, which inserts text from a second file into a form letter or other boilerplate documents.

Because these three programs are in ROM, they use almost no RAM, allowing larger data files than ever before. And the programs need never be loaded from cassette.

"We are so sure that people will like the Ultimate ROM," says Eppley, "we are offering something rare in the software industry: a 30-day money-back guarantee."

As an introductory special, Traveling Software was offering the Ultimate ROM for \$199.95 through September 20, 1985. After that, the package will sell for \$229.85, the cost of the three products separately on cassette.

Also included with the Ultimate ROM are the Traveling Memory Manager, which helps make the most of the Model 100/200 and PC-8201 memory; an audio cassette overview of the programs; and a clearly written manual for each of the programs.

The Ultimate ROM is now available from computer and software dealers nationwide or direct for Traveling Software. The Ultimate ROM will also be available from Radio Shack stores this fall.

For further information contact Traveling Software, Inc., 11050 Fifth Avenue, NE, Seattle, WA 98125, (206) 367-8090.

Mention that you read about it in the *Computer Shopper*. •

ARK ELECTRONICS

734 Phillips Avenue • Toledo, Ohio 43612

ASSEMBLE IN 60 MINUTES... IBM, PC/XT COMPATIBLE \$919⁰⁰

With the addition of only a screwdriver and pliers, assemble an IBM, PC/XT compatible system that runs Flight Simulator, Lotus and other IBM software. Assembly kit includes the new Seville-XT motherboard featuring floppy disk controller plus both serial and parallel ports, all on main board. Also included is a color graphics card. (Monitor must be purchased separately.) Boards are totally assembled, tested and warranted.

Kit includes:

- Seville-XT Motherboard, fully populated
- 256K RAM, on board - expandable
- (1) Half Height Disk Drive, DS/DD
- 130 WATT Power Supply
- Color Graphics Card
- Standard Keyboard
- PC/XT Case
- Floppy Drive Cable
- Speaker

MBE-XT BOARD

- Eight I/O Slots
- 8088 16-Bit Microprocessor
- 8087 Math Co-Processor, optional
- 4 Channel DMA
- 8 Channel Interrupt
- Up to 256K RAM
- Accepts Eproms or ROMs
- Accepts Same Keyboard & Power Connectors as IBM
- Runs All IBM Software
- Parts List & Schematics Included

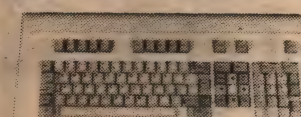
Bare Board \$49⁹⁵ Soldering Kit \$64⁹⁵ BIOS ROM \$29⁹⁵
Parts Kit \$174⁹⁵ w/o BIOS

SEVILLE-XT

- Five I/O Slots
- 8088 16-Bit Microprocessor
- 8087 Math Co-Processor, optional
- Up to 512K RAM
- Built-in Floppy Disk Controller
- Built-in Serial Port
- Built-in Parallel Printer Port
- Accepts Same Keyboard & Power Connectors as IBM
- Parts List & Schematics Included

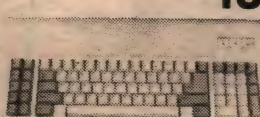
Bare Board w/BIOS \$149⁰⁰ Soldering Kit \$59⁹⁵ Parts Kit \$199⁹⁵
Board, fully socketed w/BIOS \$249⁰⁰ IC Kit \$160⁰⁰
Board, populated w/64K and 1-year warranty \$449⁰⁰

KEYBOARDS \$119⁹⁵ \$109⁹⁵



KB-5151

- Keytronics Equivalent
- Separate Cursor/Numeric Keypads
- Illuminated Caps & Num Lock
- Fully IBM Compatible



Maxi-Switch

- Illuminated Caps, Num & Scroll Lock
- Oversize Shift & Return Keys
- Fully IBM Compatible
- Std. "IBM-Style" Keyboard ... \$89.95

TAXAN RGB VISION III \$299⁹⁵

Super Hi-Res RGB Monitor

- 12" Screen
- 640 x 262 Pixels
- 18 MHz Bandwidth
- 25 Lines x 80 Columns
- .38mm Dot Pitch w/Black Matrix for a sharp image and high contrast
- As manufactured for Acorn Computer.

RGB cable for IBM..... \$16.95

POWER SUPPLIES

130 WATT Side or Rear Mount

- Will Power Hard Drive
- 4 Disk Drive Power Cables
- Over twice IBM-PC Output

\$99⁹⁵



100 WATT Rear Mount

- 2 Disk Drive Power Cables
- Over IBM-XT Output

\$89⁹⁵

PC/XT CASE \$69⁹⁵



- Accepts PC-type Motherboards
- Includes Hardware for 2-4 Drives
- Accepts Side-Mount Power Supply
- PC-type Expansion Opening
- Hinged Top Lid

TERMS -
Prices are subject to change without notice. We are not responsible for typographical errors. We reserve the right to limit quantities & to substitute manufacturers. All merchandise subject to prior sale.



Sanyo FDA-5200B/PC

- Half Height
- DS/DD
- Mounting Brackets

\$89⁹⁵

DRIVES



Omek OM55

- Built-in exercise & self-test modes
- Low power requirements (4.9 watts)
- Remarkably quiet operation
- AT compatible
- 1-year warranty

\$139⁹⁵



QumeTrak 142"

- Half Height
- DS/DD

\$79⁹⁵

BOARDS & RAM (Assembled & Tested)

- Color Graphics..... \$109.95
- Disc Controller (4 Drives)..... \$79.95
- Multifunction..... \$139.95 to \$259.95

4164 200ns..... 79¢ ea.

41256 200ns..... \$3.19

**Orders Call Collect
(419) 476-6727**

Shipping & Handling Additional
VISA ■ MASTERCARD ■ AMERICAN EXPRESS
WELCOME

**Inquiries & Service
(419) 476-6972**

ARK ELECTRONICS IS AN AUTHORIZED DISTRIBUTOR FOR JDR MICRODEVICES

Modem Protection

Electronic Specialists' expanding product line now includes modem protection. Kleen Line Security models are available for standard 4 pin telephone modular connectors (RJ-11) and the wider 8 pin connectors (RJ-45).

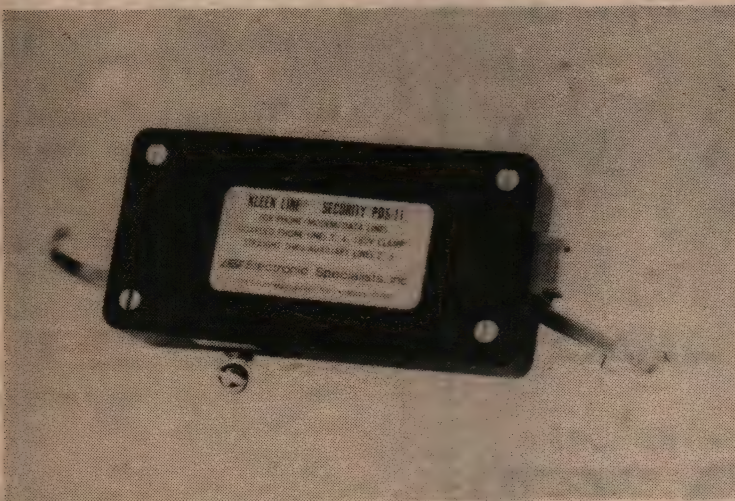
Intended to suppress damaging telephone line spikes caused by lightning, spherics or phone office switch gear, the Kleen Line Security system uses modern two stage semiconductor and Gas Discharge Tube suppression techniques. An isolated ground is employed to isolate equipment from

damaging lightning discharge current.

Model PDS-11 has suppression on red and green phone lines (pins 3 & 4) with yellow and black lines brought straight through. Standard modular 4 pin telephone connectors provide simple, trouble-free hook-up. PDS-11 at \$69.95.

For more information contact Electronic Specialists, Inc., 171 S. Main Street, P.O. Box 389, Natick, MA 01760. Phone: (617) 225-4876.

Mention that you read about it in the *Computer Shopper*. ●



Quick And Easy Programming Aids

If you have been waiting for a quick and easy way to learn how to write BASIC computer programs, "15 Minute BASIC" may be just what you need. From Micro Logic Corp. of Hackensack, NJ, MICRO CHART #12 entitled "15 Minute BASIC" is an attractive two-sided two-color 8½ by 11" plastic card. It uses simple language and illustrations to get you programming fast. The card is for: new owners of personal computers who want to write their own programs; BASIC instructors who want to recommend a preparatory text; and managers who want to understand computers. The card assumes no programming knowledge and covers: the fundamental statement types, variables, formulas, strings, arrays, functions, a variety of realistic programs, and more. A companion card, MICRO CHART #4, called "Algorithms" includes slightly more advanced BASIC programs. MICRO CHARTS are available with a money-back guarantee for \$5.95 each (plus \$1 postage) from Micro Logic, Dept. P,

POB 174, Hackensack, NJ 07602. (201) 342-6518.

If you program in the "C" language, or are learning it you can now get the info you need much faster from the first com-

two-color 8½ by 11" plastic card filled with 4 point type. It covers not only the full implementation of the language

Continued on page 156

SAS INDUSTRIES

3091 N. Bay Drive, North Bend, Ore. 97459-5020

Phone: (503) 756-2508

INK FOR INKERS

We now have an excellent stock of ink for the machines which reink the ribbons for computer printers and other data processing inkers. This is an ink which is especially formulated to lubricate the pins in the matrix type printers and works equally well for the daisywheel and others.

Prices:

2 ounce bottle	\$3.00
4 ounce bottle	\$5.00
Pint bottles	\$14.95
Quart bottles	\$24.50

The above prices include postage or UPS charges to you. Please give a mailing address as well as a UPS address.

We have ink in red, blue, green and yellow as well as black. We can have other colors on request. We also have a thinner which can be added to make any color lighter. The price is the same regardless of color.

We also have available our Mark II Inker. Write for free brochure, state make and model of printer. If you are a member of a user group please send name and address of your group. Dealer inquiries invited.

Phone rings home and shop, day or nite. We have both Master and VISA charge. Feel free to call when rates are low.

FORMS FOR YOU

P.O. BOX 3360
POUGHKEEPSIE, N.Y. 12603
(914) 471-8399

PRINTER PAPER HALF-PAK FULL CARTON

9½ x 3¾ 20# BLANK WHITE ONE THIRD SHEETS	4,500—22.00	9,000—38.00
9½ x 5½ 20# BLANK WHITE HALF-SHEETS	3,000—22.00	6,000—38.00
9½ x 11 20# ¼" BLUE BAR E-Z READ	1,500—22.00	3,000—36.00
9½ x 11 20# BLANK WHITE	1,500—22.00	3,000—35.00
9½ x 11 20# BLANK WHITE*	1,250—21.95	2,500—29.95

CONTINUOUS STATIONERY WATERMARKED BOND

9½ x 11 20# WHITE 25% RAG*	1,000—36.00	2,000—69.95
9½ x 11 20# CLASSIC LAID*	1,000—35.00	2,000—65.00

AVAILABLE IN WHITE—IVORY—TAN—GREY—BLUE (SPECIFY COLOR)

*CLEAN EDGE PERFORATIONS ALL AROUND—FOR CUT SHEET APPEARANCE

INDEX AND ROLODEX CARDS HALF-PAK FULL CARTON

6 x 3 INDEX CARDS	2,000—16.00	4,000—28.00
5 x 3 NET SIZE AVAILABLE GOLD OR WHITE		
7 x 4 INDEX/POST CARDS	2,000—20.00	4,000—38.00
6 x 4 NET SIZE AVAILABLE GOLD OR WHITE		
5 x 2½ ROLODEX CARDS	1,000—17.00	2,000—29.00
4 x 2½ NET CARD SIZE WHITE ONLY		
6 x 3 ROLODEX CARDS	1,000—18.00	2,000—31.00
5 x 3 NET CARD SIZE WHITE ONLY		

PRESSURE SENSITIVE LABELS HALF-PAK FULL CARTON

3½ x 15/16	1 ACROSS	2,500—6.50	5,000—12.50
	2 ACROSS	5,000—13.00	10,000—25.00
	3 ACROSS	7,500—19.00	15,000—37.50
4 x 17/16	1 ACROSS	2,500—13.00	5,000—24.00
	2 ACROSS	5,000—26.00	10,000—48.00
4 x 7/16	1 ACROSS	2,500—11.00	5,000—19.00
	FILE FOLDER		



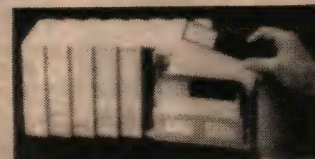
COPY-HOLDER

ADJUSTABLE TO ANY POSITION TO KEEP YOUR COPY AT EYE LEVEL. ELIMINATES EYE STRAIN. WHEN NOT IN USE, SWINGS OUT OF YOUR WAY. HEAVY DUTY STEEL CONSTRUCTION. 30" REACH

COLOR—PUTTY 20.00

DISK-BANK

AN INTERLOCKING STACKABLE DISK STORAGE FOR 5.25" OR 8" DISKS.



COLOR—SMOKE OR PUTTY (SPECIFY COLOR)
DB5—5.25" DISKS — 5.00 EA.
DB8—8" DISKS — 6.00 EA. (PUTTY ONLY)

DISKETTE 70-STORAGE

DUST FREE STORAGE FOR 70 5.25" DISKS WITH 6 DIVIDERS. HINGED LID CLOSSES TIGHTLY AND THE BACK OF CASE DOUBLES AS A CARRYING HANDLE.



COLOR—SMOKE 17.50 EA.

FREE SHIPPING CONTINENTAL USA

ALL ITEMS STOCKED FOR IMMEDIATE SHIPMENT. WE ACCEPT MONEY ORDERS, VISA AND MASTER CARD, COMPANY OR PERSONAL CHECKS. (ALLOW 2 WEEKS FOR PERSONAL CHECKS TO CLEAR.) CALL OR WRITE FOR COMPLETE CATALOG. N.Y. RESIDENTS ADD APPROPRIATE SALES TAX.

CALL TOLL FREE—1-800-431-4665 (OUTSIDE N.Y.S.)

Quick & Easy
Continued from page 155
but auxiliary utilities too. The one sheet design gives you very fast lookups and higher programming productivity according to the publisher. Covered are: statement summary, basic data types, conversion of data types, operator definitions with precedences and associativity,

escape characters, preprocessor statements, typedef, constants, scope of variables, arrays, pointers, functions, structures, unions, enumerated data types, printf, scanf, the UNIX(tm) cc command, the lint command, a summary of over 100 commonly used library functions, command line arguments, tools under UNIX, ASCII, and more. The

summary was written by Stephen Kochan - author of the best-selling "Programming in C" (Hayden Book Company) and consultant to Bell Labs. MICRO CHART #11 and other summaries are available with a money-back guarantee for \$5.95 each (plus \$1 postage) from Micro Logic, POB 174, Dept. P, Hackensack, NJ 07602. (201) 342-6518. •

PALET Programmable Array Logic Educational Tool

PALET, a new Logical Devices, Inc. publication, stands alone as the computer industry's first home-study

course for programmable logic devices (PLDs).

With PALET engineers can now set aside their initial fear of designing replacements for standard logic chips and wholeheartedly pursue the programming of such devices as MMI PALs and HARRIS CMOS HPLs.

PLDs have greatly aided engineers in the modification of standard logic chips. However, PALET fills the educational void felt by engineers trying to use the PLDs.

PALET provides examples and an easy-to-follow format in presenting logic definition, design, and implementation of PLDs in a production cycle. A user will be able to practice programming a sample design on several of the PLD devices provided, then verify the design using the test vectors and simulation.

PALET was released from Engineering August 29, 1985, and is scheduled to go into production December, 1985. Pre-production models was available September, 1985.

The total price for PALET is only \$385.00 which includes the following:

- PALET course text material
- Stand-alone PLD programmer with power supply, keypad, and display.
- IBM PC software design tool: LAD (Logicals Automated Design software).
- Sample PLD devices.
- CERTIFICATE of PROGRAM COMPLETION given after completing and returning a test at the end of the course.

Logical Devices, Inc. manufactures a complete line of PROM and PAL programming devices. PALET is available directly from the factory and can be ordered by calling the following TOLL FREE NUMBER: 1-800-331-7766. Mail your orders to Logical Devices, Inc., 1321 N.W. 65th Place, Fort Lauderdale, Florida 33309.

Mention that you read about it in *Computer Shopper*. •



Your #1 Source for great savings on . . . Computer Supplies

maxell FLOPPIES!



As Low As \$14.95/box

- MD1-DM, 5 1/4", SS/DD . . . \$14.95
- MD2-DM, 5 1/4", DS/DD . . . \$18.95
- FH1-32, 8", SS/DD, 32 hard sector . . . \$29.90
- FD1-28, 8", SS/DD, soft sector . . . \$29.90
- MD2-HD, for IBM AT . . . \$45.50
- MF-1, for Apple Macintosh (SS/DD 3 1/2") . . . \$29.95

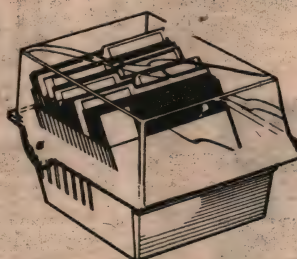
All prices shown are for boxes of 10.

THE DISKBANK® MEDIAMATE by AMARAY

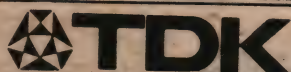
- Store & protect up to 50 diskettes at a time. Available in sizes to accommodate both 5 1/4" and 3 1/2" diskettes.
- Sturdy, high impact styrene construction
- Attractive smoke see-thru cover
- Convenient adjustable tab dividers
- Self-locking cover with easy-carry handle
- Case on case stackability

ONLY! \$14.95 EACH

(Specify whether for 3 1/2" or 5 1/4" diskettes.)



AMARAY



THE NO RISK DISK!

- M1D-S, 5 1/4", SS/DD . . . \$13.95
 - M2D-S, 5 1/4", DS/DD . . . \$15.95
- SUPER SPECIAL ON 8" FLOPPY DISKETTES!**
- F1-S-128, 8", SS/DD, soft sector . . . \$15.00
 - F1-H-32, 8", SS/DD, 32 hard sector . . . \$15.00
 - F2D-X, 8", DS/DD, soft sector . . . \$19.95

All prices shown are for boxes of 10.

COMPUTER PAPER AT COMPETITIVE PRICES!

Also available all configurations and sizes in larger quantities.

MINI-PAK

9 1/2" x 11"
1000 sheets
20 lb. blank
Super perf.
(clean edge)

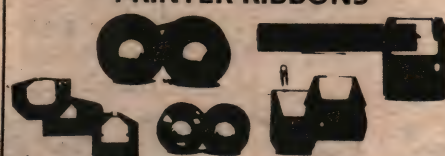
ONLY! \$13.00/Pak

MINI-PAK

14 7/8" x 11"
1/2" Green Bar
1500 sheets

ONLY! \$19.00/Pak

PRINTER RIBBONS



We carry a full line of quality replacement ribbons for all popular make computer printers Okidata, Epson, Diablo, N.E.C., Juki & others.

THIS MONTH'S RIBBON SPECIALS!

- For Epson MX-80 . . . \$4.00/cart
- For Epson MX-100 . . . \$7.15/cart
- For Okidata 82/92 . . . \$1.80/spool

HEAD CLEANING KITS



Keeps your computer & peripherals running smoothly with regular care!

- DISK DRIVE CLEANING KIT (5 1/4") \$12.95 ONLY! (8") \$14.95 (3 1/2") \$23.95
- VIDEO PLUS V.D.T. SCREEN ANTI-STATIC CLEANING KIT . ONLY! \$12.95
- PRINT ELEMENT CLEANING KIT ONLY! \$12.95

CUSTOM FIT ANTI-STATIC COVERS!

Made of heavy-duty 8 gauge anti-static vinyl. Tailored to fit over 100 different computers, monitors, printers or keyboards.

INDIVIDUAL COVER

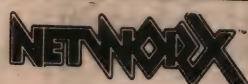
ONLY! \$9.95

(Specify item brand & model #)

IN STOCK SPECIAL!

IBM PC 2 piece set (monitor & keyboard)

ONLY! \$11.95



WIRE TREE PLUS

6 outlet w/built-in modem protection.

ONLY! \$79.95

WIRE TREE

4 outlet

ONLY! \$49.95

WIRE CUBE

ONLY! \$24.95

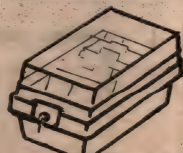


DISK STORAGE

DX-85

Locked security system protects your 5 1/4" floppies.

ONLY! \$16.95



FREE CATALOG!

Now available! Magtek's 168 page computer and word processing supply catalog! It features genuine IBM supplies. Call or write for your copy! (Attach business card or complete.)

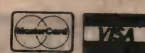
Name _____
Address _____
City _____
State _____ Zip _____
Tel () _____

ADDRESS LABELS

Pin-fed self-adhesive labels constructed of the finest quality adhesive, face papers & backing. Label size: 3 1/2" x 15/16"

1 Across Label
1000 per pack

ONLY \$4.50 per pack



ORDERING INFO: All prices are prepaid or C.O.D. Written purchase orders from approved government agencies and well rated firms accepted. State residents add appropriate tax, freight and handling. All products shipped U.P.S. Ground Service. Orders up to \$50 add \$5, up to \$150 add \$7, up to \$250 add \$9.50. Over \$250 free freight & handling. Orders for less than \$50 add \$5 handling charge. Master and Visa cards accepted. All merchandise is brand new & fully warranted. Quantities limited. Prices subject to change without notice.



MAGTEK-MEDIA DATA SUPPLIES, LTD.

17 Church Avenue Brooklyn, N.Y. 11218

In N.Y. State (718) 851-8383

Outside N.Y. Call Toll Free:

800-221-0869

We're the "people friendly people" in the computer business.

SUPER PRICE, INC.

YOUR SAVINGS IS OUR BUSINESS

25108 MARGURITE PARKWAY
SUITE B-18
MISSION VIEJO, CA 92691
TEL: (714) 730-9336

IBM PC, XT, AT, COMPAQ

\$CALL \$CALL \$CALL



American XT Personal Computer

64K Basic System

64K Mother Board w/135 Watt
Power Supply,
5150 Keyboard. **\$595**

256K Student System

256K RAM, 135WPS, 5150KB,
2 DS/DD Drive,
Color Graphics Card. **\$995**

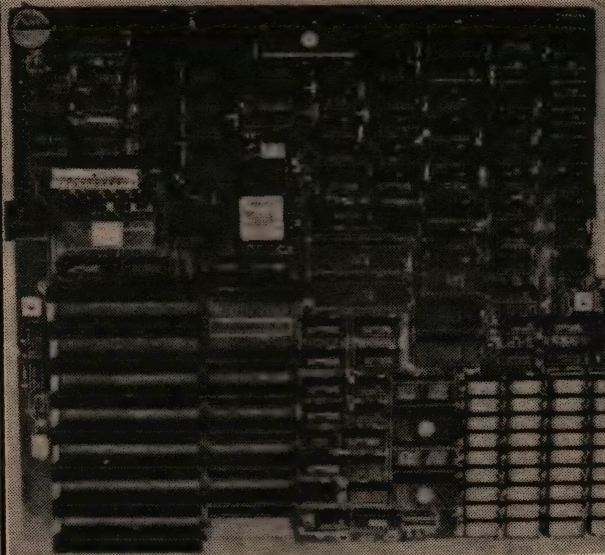
Complete System

640K RAM, 2 DS/DD Drive, Serial
Port, Parallel Port, Game Port,
Real Time Clock, Color Graphics
Card, & Taxan Monitor 116 **\$1295**

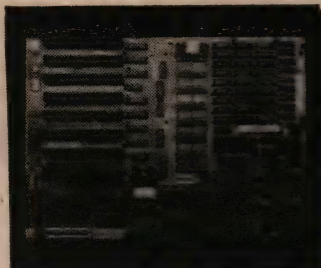
Disk Controller Card	\$70
Hard Disk Controller Card	\$175
I/O Plus (Ser., Par., Game & Clock)	\$100
384K Multifunction w/OK	\$125
Color Graphics Card	\$99
Monochrome Card	\$99
Monochrome Graphics Card w/printer port	\$125

IBM PC, XT, AT is a trademark of IBM Corp.
American AT, XT is a trademark of American Computer
& Peripheral, Inc.
Apple IIe, IIc is a trademark of Apple Computer Inc.

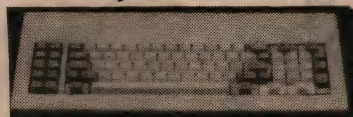
AmericanTM XT/AT IBM XT/AT COMPATIBLE



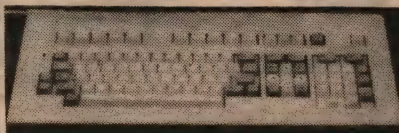
640K American AT Mother Board \$1295



64K American XT Mother Board
4 Layer P.C.B. \$295



XT5150 KB \$75



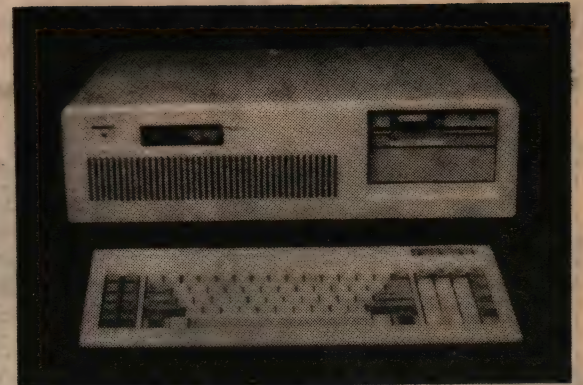
XT5151 KB \$110

**TATUNG RGB
CM1322 Monitor
\$350**

Computer Case
— IBM
Look-a-Like
\$70

POWER SUPPLY

135W	\$90
150W	\$100
Disk Drive 360K	
DS/DD	\$95
Hard Disk 10M	
System	\$525
20M System	\$695
4164 150NS	\$70
41256 150NS	\$350



American AT Personal Computer

640K Basic System

640K RAM w/200W P.S.,
AT Keyboard, 1.2M Drive,
Color Graphics Card **\$2500**

640K Enhanced System

All the features of Basic
System plus 20MB Hard
Disk & Serial/Parallel **\$3195**

AT Case	\$145
AT K.B.	\$125
AT P.S., 200 watt	\$190
Serial & Parallel	\$100

Controller HD & FDC	
.....	\$450
1.2M Drive ...	\$165
20M HD	\$595
360K Drive for AT	\$105

Apple

Compatible
II + IIe/IIc Drives

Half High Direct Drive
II + IIe \$90, IIc \$95

TERMS:

- * Prepaid Cashier's Check - Free Shipping Charge.
- * VISA, M/C, COD, Add \$15 for Shipping & Handling.
- * CA Res. Add 6% Sales Tax.
- * All Items 90 Days Guarantee.



ECI**Gem of the Month:****Order Desk 1-800-356-5178****8000 SERIES**

8039	\$4.75
8039P-11	\$2.75
8085	\$2.75
8155	\$2.75
8156	\$3.25
8243	\$2.25
8251	\$2.25
8253	\$2.75
8255	\$2.25
8279	\$2.40
8086CPU	\$9.00
8088CPU	\$6.00

8087	\$145.00
80287	\$230.00

All products are
new and war-
ranted by ECI and
manufacturers.

STATIC RAM

2006-100	\$3.00
6116 P-3	\$2.50
6116 LP-3	\$3.75
6264 P-15	\$6.00
6264 LP-15	\$6.50
5565 PL-15	\$6.40

EPROMS

2716-450 n/s	\$ 2.90
2732-450 n/s	\$ 3.00
2732-250 n/s	\$ 3.15
2764-250 n/s	\$ 3.50
27128-250 n/s	\$ 4.95
27256-250 n/s	\$ 8.95
27512-250 n/s	\$ 72.00

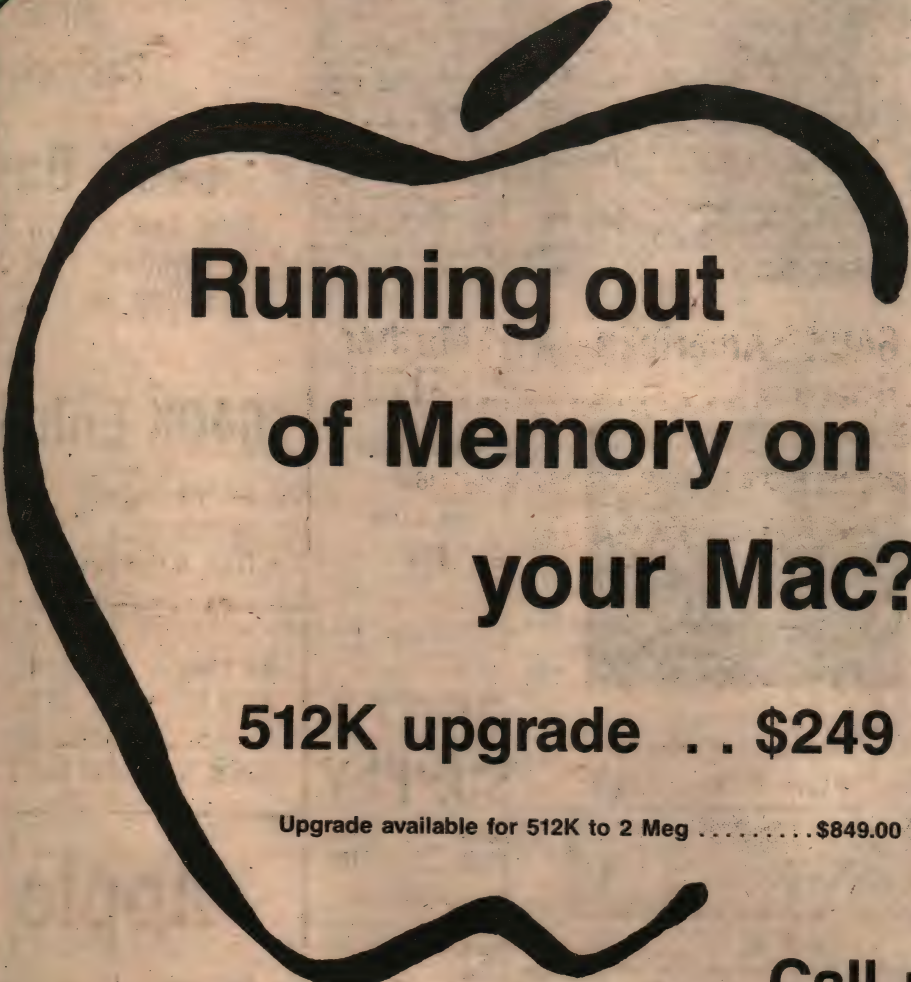
DYNAMIC RAM

Memory Upgrade Kits

4116-150 n/s	8/\$ 6.20
4116-200 n/s	8/\$ 5.20
4164-120 n/s	9/\$ 8.50
4164-150 n/s	9/\$ 6.30
4164-200 n/s	9/\$ 6.50
4128 piggyback for the A.T.	9/\$54.00
41256-12	9/\$31.50
41256-15	9/\$25.20
41256-20	9/\$22.00

IBM CARDS

512K RAM Card (w/o Memory)	\$ 62.00
384K RAM Card (w/o Memory)	\$ 56.00
Printer interface card	\$ 49.00
Color graphics card	\$120.00
384K-multifunction card	\$130.00



Running out of Memory on your Mac?

512K upgrade . . \$249

Upgrade available for 512K to 2 Meg \$849.00

TM trademark of Apple Computer, inc.

Fatter is Better

The advantages of 512K are well known—your Mac will have 8-10 times more effective memory space than at 128K. For instance a 512K Mac will hold 50-70 pages of text on a single file instead of only 7!

New Exchange System

Never be without your Mac. With our new exchange system we immediately ship you a complete 512K upgrade board with easy exchange instructions.

Deposit required for tools and old board.

ECI offers you a one year warranty.

Board Upgrade

If you prefer to have your board upgraded we can do that also. Please allow 2 days turn around time.

We can also provide service and repair for those Macintoshes no longer covered by Apple warranty.

Call now for more info
1-800-356-5178

Mail orders and payments to:

Emerald Components International
P.O. Box 1441
Eugene, OR 97440
Tel: 503-683-1154

Commodore and Commodore 64 are registered trademark of Commodore Electronics Ltd. and/or Commodore Business Machines, Inc.



CS#13

Please include telephone number on your order.

Please allow 15 days for personal checks to clear.

No Sales Tax!!
Great Service!!
Great Prices!!

Monochrome graphics card, IBM compatible,
immediate delivery\$120.00

Telex: (23) 499-6100 Eug. Svc.

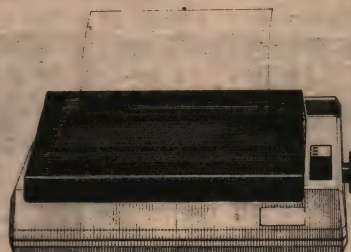
Smartmodem



by Smarteam

Smarteam Smartmodem fully Hayes compatible
300/1200 baud, Apple and IBM compatible,
two year warranty \$210.00
2400 Baud Smarteam modem \$479.00

PRINTERS

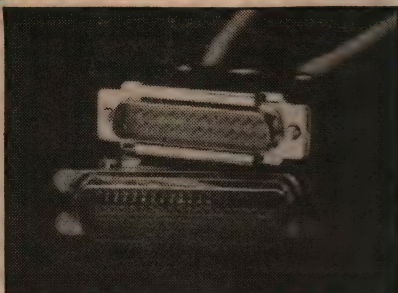


SEI 15 L.Q. 18 cps daisywheel \$365.00

LEGEND

1385	160 cps.	15"	.....	\$395.00
1380	130 cps.	10"	.....	\$350.00
1080	100 cps.	10"	.....	\$315.00
880	80 cps.	10"	.....	\$260.00

Cable Products

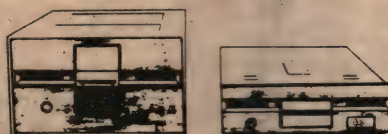


Parallel Printer Cables (6 foot shielded)	\$ 12.00
Parallel Round (2 centronics ends)	\$ 14.25
Serial Cable	\$ 10.50
Y Splitter Cable	\$ 5.00
IBM Modem Cable	\$ 9.75
Macintosh Modem Cable	\$ 9.90

COMPUTER ACCESSORIES

Diskette Filers	
10 disk capacity	\$ 5.25
70 disk capacity	\$ 10.25
70 disk capacity (w/lock)	\$ 13.00
Power Control Center	
6 plug line, with surge protect	\$ 14.50
Swivel Monitor Base	
twelve inch	\$ 11.95
fourteen inch	\$ 13.40
Computer Dust Cover - IBM PC	\$ 6.10
AB Switch box parallel of serial	\$ 50.00

DISK DRIVES

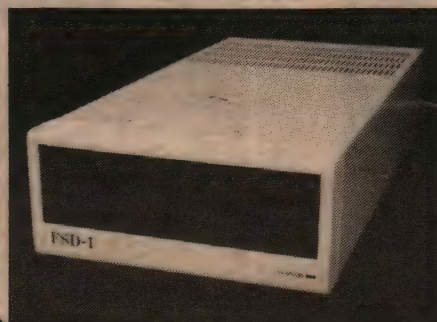


IBM COMPATIBLE:	
Panasonic (JA551-2 (half height) DS/DD)	\$ 84.95
Toshiba ND-040T (half height) DS/DD	\$ 99.00
APPLE COMPATIBLE:	
MITAC AD 1 (full height)	\$130.00
MITAC (half height)	\$130.00

100% Commodore Compatible

FSD-1 5 1/4" Disk Drive ... \$139.00

The FSD-1 Disk Drive is a versatile and efficient disk drive built for the Commodore series of personal computers. This disk drive is fully compatible with the Commodore 64 computer and directly replaces the Commodore 1541 Disk Drive, giving much better performance in terms of data loading and writing speed and memory buffer size.



Special Features

- Full 6 month warranty.
- Slim line construction (low profile).
- All metal vented chassis.
- Solid state power supply.
- Dual serial port with chaining option.
- 5 1/4 inch industry standard format.

Visa and MasterCard are welcome. Your account will not be charged until your order is shipped.

Shipping charges are 3% for UPS Ground (\$5.00 minimum), 6% UPS Air (\$10.00 minimum), minimum order is \$35.00. NO C.O.D. ORDERS! Order desk is open from 6:00 a.m. to 6:00 p.m. PDT. This advertisement supercedes previously published advertisements.

All products are new and warranted by ECI and manufacturers. Returns are subject to 5% restock unless product is defective.

Order Desk
6 to 6 M-F P.D.T.
8 to Noon Sat.
1-800-356-5178



Copy Protection

Continued from page 130

Destroy the Industry?

A recent survey by Future Computing Inc. of Dallas indicated that for every legal copy in use there were two illegal ones, leading to the conclusion that piracy was denying the industry of more than half of its legitimate earnings!

The vendors take the not-unreasonable position that this scale of piracy can eventually destroy innovation, cutting off

the life blood of development, namely the rightful expectation of a fair return on investment; forcing retail prices to compete with the illegal underground and undermining incentives that keep the industry healthy and vigorous.

As software becomes ever-more sophisticated, requiring expensive team efforts over months and years, much of it in the nature of "R&D" that does not in the short term lead to marketable products,

marketing stability and long term planning will become the sin qua non of success. A vast and uncontrollable underground will make such stability impossible to attain. Thus, they reason that the problem of piracy is more far-reaching than merely a threat to short term profits.

So real is the problem that great amounts of money are being invested in solving it. MicroPro has decided to go after large scale pirates in the

courts. Its case against American Brands for multiplying illegal copies within its facilities is now pending, designed to set an example for others in large companies that now routinely multiply a few licensed packages, Xeroxing the documentation for others in the office to use or take home for their spouses. By such action, together with reduced fees for "site licenses," MicroPro hopes to tame the buccaneering in large institu-

tions such as corporations and universities.

The ProLok people (Vault Inc.) recently filed against Quaid Software of Toronto (Copywrit) on two grounds; (1) that in decompiling the protection scheme, Quaid violated the "shrink wrap" agreement; and (2) that its protection-breaking software deprived Vault of millions of dollars in sales.

This will be an interesting case. Louisiana, where the case will be tried, has a law giving legal weight to "shrink wrap" agreements (which say "if you open this package, you agree to..."). If the court finds the law enforceable, it might encourage software firms to seek such a law on a national basis. Opponents argue that such a law shields vendors from responsibility for the quality and performance of their products, prohibited users from repairing flaws and forces buyers into a binding agreement without their explicit consents.

Using Copy Breakers

Bob McQuaid scorned the suit. "ProLok is easily breakable. In fact, if you look at a few computer bulletin boards, you will find a half dozen different ways to break it. Their system just doesn't work."

COPYWRIT, produced by Quaid Software Ltd., 45 Charles Street East, Toronto Canada (416-961-8243), is one of the two best-selling copy-protection breakers on the market. The other is COPYIPC (which includes special versions for the PC Jr. and the AT), produced and marketed by Central Point Software, Inc., 9700 SW Capitol Hwy, Portland, OR, (503-244-5782). These programs sell for about \$39 and, in their latest editions, will break copy protection on at least 90 percent of all commercial software.

I have discovered another use for them: they make the AT high density (HD) drives completely compatible with PC 362K drives. IBM claims only upward compatibility. But I have found it possible to format disks at the lower density on the HD. Such disks can be read and written to on either model without the least problem, and the double density formats on both are completely exchangeable. The trick is accomplished by using the copybreaker programs to copy previously formatted blank disks of the desired densities. Its work perfectly and adds a dimension of compatibility to the AT which makes its presence in a setting of PC

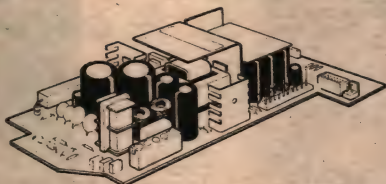
ALL SALES ARE MADE SUBJECT TO THE TERMS OF OUR 90 DAY LIMITED WARRANTY. A COPY OF THIS WARRANTY IS AVAILABLE FREE, ON REQUEST.

DIGITAL RESEARCH COMPUTERS

(214) 225-2309

Switching Power Supply!

- + 5VDC - 8 Amps
- +12VDC - 5 Amps
- 12VDC - 1 Amp
- (81 WATTS MAX)

\$29⁹⁵ ea.

4 FOR \$99

ADD \$2
EA. UPS

BRAND NEW UNITS, MFG. BY BOSCHERT FOR HEWLETT PACKARD! PERFECT FOR SMALL COMPUTER AND DISK DRIVE APPLICATIONS #XL81-5630. INPUT 110V/220V, 50/60 HZ. NOMINAL OUTPUTS: +5VDC @ 8A, +12VDC @ 5A, -12VDC @ 1A. TOTAL MAX OUTPUT. MUST BE LIMITED TO 81 WATTS TOTAL! (WITH PIN OUT SHEET.) ORIGINAL FACTORY BOXED.

64K S100 STATIC RAM

\$119⁰⁰ KIT

LOW POWER!
150 NS ADD \$10

BLANK PC BOARD
WITH DOCUMENTATION
\$49.95

SUPPORT ICs + CAPS
\$17.50

FULL SOCKET SET
\$14.50

FULLY SUPPORTS THE
NEW IEEE 696 S100
STANDARD
(AS PROPOSED)

FOR 56K KIT \$105

ASSEMBLED AND
TESTED ADD \$50

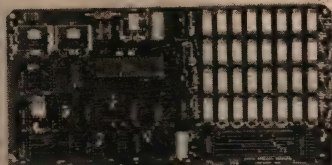


FEATURES: PRICE CUT!

- Uses new 2K x 8 (TMM 2016 or HM 6116) RAMs.
- Fully supports IEEE 696 24 BIT Extended Addressing.
- 64K draws only approximately 500 MA.
- 200 NS RAMs are standard. (TOSHIBA makes TMM 2016s as fast as 100 NS. FOR YOUR HIGH SPEED APPLICATIONS.)
- SUPPORTS PHANTOM (BOTH LOWER 32K AND ENTIRE BOARD).
- 2716 EPROMs may be installed in any of top 48K.
- Any of the top 8K (E000 H AND ABOVE) may be disabled to provide windows to eliminate any possible conflicts with your system monitor, disk controller, etc.
- Perfect for small systems since BOTH RAM and EPROM may co-exist on the same board.
- BOARD may be partially populated as 56K.

256K S-100 SOLID STATE DISK SIMULATOR!
WE CALL THIS BOARD THE "LIGHT-SPEED-100" BECAUSE IT OFFERS AN ASTOUNDING INCREASE IN YOUR COMPUTER'S PERFORMANCE WHEN COMPARED TO A MECHANICAL FLOPPY DISK DRIVE.

PRICE CUT!



BLANK PCB
(WITH CP/M* 2.2
PATCHES AND INSTALL
PROGRAM ON DISKETTE)
\$69.95
(8203-1 INTEL \$29.95)

- FEATURES:
- 256K on board, using + 5V 64K DRAMS.
 - Uses new Intel 8203-1 LSI Memory Controller.
 - Requires only 4 Dip Switch Selectable I/O Ports.
 - Runs on 8080 or Z80 S100 machines.
 - Up to 8 L S-100 boards can be run together for 2 Meg. of On Line Solid State Disk Storage.
 - Provisions for Battery back-up.
 - Software to mate the LS-100 to your CP/M* 2.2 DOS is supplied.
 - The LS-100 provides an increase in speed of up to 7 to 10 times on Disk Intensive Software.
 - Compare our price! You could pay up to 3 times as much for similar boards.

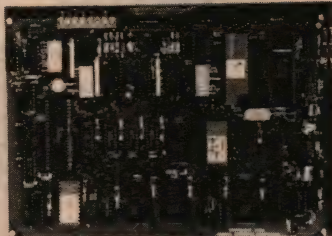
(ADD \$50 FOR A&T) \$149⁰⁰
#LS-100 (FULL 256K KIT)

THE NEW ZRT-80

CRT TERMINAL BOARD!

A LOW COST Z-80 BASED SINGLE BOARD THAT ONLY NEEDS AN ASCII KEYBOARD, POWER SUPPLY, AND VIDEO MONITOR TO MAKE A COMPLETE CRT TERMINAL. USE AS A COMPUTER CONSOLE, OR WITH A MODEM FOR USE WITH ANY OF THE PHONE-LINE COMPUTER SERVICES.

- FEATURES:
- Uses a Z80A and 6845 CRT Controller for powerful video capabilities.
 - RS232 at 16 BAUD Rates from 75 to 19,200.
 - 24 x 80 standard format (60 Hz).
 - Optional formats from 24 x 80 (50 Hz) to 64 lines x 96 characters (60 Hz).
 - Higher density formats require up to 3 additional 2K x 8 6116 RAMs.
 - Uses N.S. INS 8250 BAUD Rate Gen. and USART combo IC.
 - 3 Terminal Emulation Modes which are Dip Switch selectable. These include the LSI-ADM3A, the Heath H-19, and the Beehive.
 - Composite or Split Video.
 - Any polarity of video or sync.
 - Inverse Video Capability.
 - Small Size: 6.5 x 9 inches.
 - Upper & lower case with descenders.
 - 7 x 9 Character Matrix.
 - Requires Par. ASCII keyboard.

\$89⁹⁵#ZRT-80
(COMPLETE KIT, 2K VIDEO RAM)

BLANK PCB WITH 2716
CHAR. ROM. 2732 MON. ROM
\$49.95

SOURCE DISKETTE - ADD \$10
SET OF 2 CRYSTALS - ADD \$7.50

FOR 8 IN. SOURCE DISK
(CP/M COMPATIBLE)
ADD \$10

32K S100 EPROM/STATIC RAM

NEW!

FOUR FUNCTION BOARD!

NEW!

EPROM II
FULL
EPROM KIT
\$69.95
A&T EPROM
ADD \$35.00

We took our very popular 32K S100 EPROM Card and added additional logic to create a more versatile EPROM/RAM Board.

- FEATURES:
- This one board can be used in any one of four ways:
 - As a 32K 2716 EPROM Board
 - As a 32K 2732 EPROM Board (Using Every Other Socket)
 - As a mixed 32K 2716 EPROM/2K x 8 RAM Board
 - As a 32K Static RAM Board
 - Uses New 2K x 8 (TMM2016 or HM6116) RAM's
 - Fully Supports IEEE 696 Bus Standard (As Proposed)
 - Supports 24 Bit Extended Addressing
 - 200 NS (FAST!) RAM'S are standard on the RAM Kit
 - Supports both Cromemco and North Star Bank Select
 - Supports Phantom
 - On Board wait State Generator
 - Every 2K Block may be disabled
 - Addressed as two separate 16K Blocks on any 64K Boundary
 - Perfect for MP/M* Systems
 - RAM Kit is very low power (300 MA typical)

32K STATIC RAM KIT — \$99.95

For RAM Kit A&T — Add \$40

BLANK
PC BOARD
WITH DATA
\$39.95
SUPPORT
IC'S
PLUS CAPS
\$16
FULL
SOCKET SET
\$15

PRICES
SLASHED!

TERMS: Add \$3.00 postage. Orders under \$15 add 75¢ handling. No C.O.D. We accept Visa and MasterCard. Tex. Res. add 5-1/8% Tax. Foreign orders (except Canada) add 20% P & H. Orders over \$50 add 85¢ for insurance.

Digital Research Computers

P.O. BOX 381450 • DUNCANVILLE, TX 75138 • (214) 225-2309

General Electric
Continued from page 136
highly "portable" language adaptable to a wide range of computers and microprocessors.

General Electric, a leader in artificial intelligence, has already successfully applied its expert systems research to the field of locomotive diagnostics. A pioneering expert system developed at the R&D Center is being used by the company's Transportation Systems Operations in Erie, PA, to troubleshoot locomotives at various railroad repair shops.

The conference here is sponsored by the International Joint Conferences on Artificial Intelligence, Inc., and co-sponsored and hosted by the American Association for Artificial Intelligence, in cooperation with the University of California, Los Angeles.

For further information contact General Electric Company Corporate Research and Development, P.O. Box 8, Schenectady, NY 12301; (518) 387-6284.

Mention that you read about it in the *Computer Shopper*. •

The "PC" Printer Pedestal The Ideal Mate for your "PC" Printer.



Strong . . . Supports the heaviest Daisy wheel.
Versatile . . . Permits multiple paper feed positioning.

• SATISFACTION GUARANTEED •

Call Any Time

CALL TOLL-FREE 1-800-654-3366

80 COL. MODEL S17 CHROME \$22.95
132 COL. MODEL S22 CHROME \$24.95

Distributors and Dealers welcome
Call for Quantity Discounts

Add \$4.00 shipping, handling.

PAB Enterprises P.O. BOX 6438, NORMAN, OK 73070

PRICE PRICE PRICE

EPSON	
RX80	\$189
LX80	\$209
FX80 +	\$319
JX80 (color)	\$449
FX100 +	\$449
LQ1500	\$829

Panasonic	
1090	\$165
1091	\$228
1092	\$329
1093	\$417
3151	\$379

brother	
HR-10	\$248
HR 15 XL	\$324
HR 25	\$483
HR 35	\$675
2024L	\$828
Twinriter 5	\$851
Cut Sheet for 15	\$139
Tractor	Call

OKIDATA	
ML92P (IBM)	\$345
ML93P (IBM)	\$548
ML84P (IBM)	\$648
192P	\$346
193P	\$557

Canon	
PW-1156A	\$472
PW-1080A	\$307
A-40	\$241

PJ-1080A	\$472
F-60	\$329
BJ-80	\$406
LBP-8A1	\$2550

HARD DISK

10 MB	1-3	4-10
HARD		
DISK		
Min 4		
10MB	349	299
20MB	499	479
40MB	699	679
Controller	149	139

TAPE BACK UP

10MB Internal	\$499
10MB External	\$599
45MB	\$879
Cables	\$15
Tape	\$20

RAM

64K (100)	\$49
256K (100)	\$299

MODEMS

Hayes 1200 B	\$325
Hayes 1200	\$360
Smarteam 1200*	\$199
* 100% Hayes compatible	

MONITORS

Samsung Green TTL	\$89
Samsung Amber TTL	\$89

TEXAS MICROLAND

(713)668-4695 6808 Bissonnet, Suite 159
Houston, TX 77074

TERMS: Items reflect cash discount. Order with cashier check or money order shipped immediately. Prices & availability subject to change without notice and do not include delivery charges. Factory warranty available. F.O.B. Houston.

Taxan 210	\$139
Taxan 220	\$139
Taxan 425	\$399
PGS HX-12	\$399

LEADING EDGE

2 DRS, 256K Model M	
Mono system	\$1599
Color System	\$1895
Add 550 for 10MB HD	
Add 750 for 20MB HD	
Add 900 for 30MB HD	
Up grade 640K	\$99

COMPAQ®

256K 2 Drs	\$1945
256K 1 Dr. 10 MB	\$2445
256K 1 Dr. 20 MB	\$2595
Deskpro, 256K, 10 MB	\$2299
Deskpro, 640K, tape back up	
- 1 Dr, 10 MB	\$3299
- 1 Dr, 22 MB	\$3499
- 1 Dr, 33 MB	\$3699

IBM

PC-256K, 2 Drs., color	\$1899
PC-256K 1 Dr. 10MB	\$2299
PC-XT 256K 1 Dr. 10MB	\$2599
PC-XT 256K, 1 Dr. 20MB	\$2749
2C-XT 256K, 1 Dr. 30MB	\$2899

MACINTOSH

195 up grade your
mac to 512K
parts & instruction
\$100 for labor we'll do it

BOARDS

Ast 6 Pak 348K	\$299
Ast Preview	\$269
Ast Advantage	\$379
Hercules Mono	\$279
Hercules Color	\$140
Ast 6 Pak compatible	\$139
PC Jr Booster 128K	\$149
PC Jr Mouse	\$79

Switch Box (to connect your computer to two printers, cables included) \$49
Floppy Controller \$79
Parallel or serial card \$45
MS Mac Enhancer \$169
RAM Board (expand to 512K) \$89

SOFTWARE

Dbase III	1-3	4-10
Framework	359	349
BPI	329	319
MS WORD	219	209
123	299	294
Multimate	234	229

DISKETTES

Maxell SS/DD	\$1.50
Maxell DS/DD	\$1.99
Generic SS/DD	\$1.59
Generic DD/DD	\$1.69
3 1/2" for Macintosh	\$1.99
3 1/2" for Kaypro 2000	\$2.30
Hi-Density for AT (10)	\$37.50
Envelopers	\$0.4

ECT.

Curtis Diamond	\$35
Curtis Emerald	\$42
Curtis Sapphire	\$56
Curtis Ruby	\$63
Swivel and base for Compaq	\$49
130 watt power supply	\$89
KB5151 Keyboard	\$99

KAYPRO 2000

lap top computer,
IBM compatible,
256K, software **1695**

2861 IBM-AT compatible
256K, 1 DR. 10MB \$2550
640K, 1 DR. 20MB \$2795
640K, 1 DR. 30MB \$2995
Add 500 For 10MB
Tape Back up

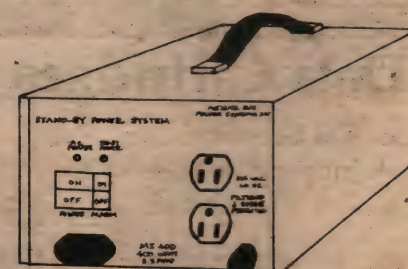
POWERLINE GREMLINS??

POWER FAILURES??

**THE MEIRICK STAND-BY POWER SYSTEM IS THE TOTAL SOLUTION
TO ALL YOUR POWERLINE PROBLEMS**

It's the best system available!
Just plug it in, turn it on,
and forget about false data,
disk crashes, surges and spikes,
power dips and failures.

240 watt unit	— \$365
400 watt unit	— \$495
800 watt unit	— \$795



NO RISK -- 100% money back guarantee

Tested and approved on these and other systems: Altos, Apple, Burroughs, Columbia, Commodore, Compaq, Compupro, Corona, Corvus, DEC, Eagle, Epson, Franklin, HP, IBC, IBM (PC, XT, jr), IMS, Kaypro, Molecular, Morrow, NEC, Tava, TRS80, Sanyo, Tall Grass, Televideo, Victor, Wang, Xerox, Zenith

MEIRICK INC., POWER SYSTEMS DIV.
Box 298, Frisco, CO 80443

303-668-3251
Dealers Welcome

Copy Protection Continued from page 160

much more convenient!

Both companies make magnificent disclaimers against illegal use of their products to avoid licensing fees. For the latter, the disclaimer reads as follows:

IMPORTANT NOTICE:
This product is provided

for the purpose of enabling you to make archival copies only. Under the Copyright Law you, as the owner of a copy of a computer program, are entitled to make a new copy for archival purposes only and this product will enable you to do so. This product is supplied for no other pur-

pose and you are not permitted to utilize it for any use, other than that specified. By using this product, you agree to be bound by the terms of this notice.

One needs to be honest about the matter. The laws for protecting and copying software are still in a rudimentary

stage, and no one has come up with any practical ideas for enforcing author and publisher rights. People are using these programs freely, not only to back up legitimate licensed software for their own use, but also as a license to steal software, to exchange it with friends, even perhaps, to sell it. McQuaid got into the business quite by accident. He

started out to sell ordinary software, but found it was more lucrative, and technically easier, to use his considerable skill in writing code, a skill developed in 15 years as a mainframe programmer, to break copy protection schemes. He started with a proprietary language called QUAID, and an editor/word processor, but found he lacked the sales organization and resources to make these products successful.

At first he began tinkering with copy breaking for fun, or for his own use; but his friends clamored for the utility, and he realized there was an enormous legitimate demand out there. People were disgusted with the inconveniences of copy protection. If they glitched a master disk, they would have to go back to their dealer for another copy. Most of the master disks could not be transferred to hard drives. It was and remains today a complete pain!

COPYWRIT was launched with a \$500 investment to buy advertising in two trade journals. It grew into a major success, staying on the top-10 list of best sellers ever since. There are dozens of other home-brew copy breakers around but, as McQuaid says, "most come and go pretty quickly because they're not well developed. Copy protection is at such a high stage that it would take two years for someone just entering the market to get up to speed." He insists that the vast majority of buyers use the utility strictly to back up licensed software. "We're not trying to sell burglar tools, but legitimate tools that customers need to stay in business."

To use either COPYWRIT or COPYIPC, one begins by transferring the main files (they only occupy about 31K bytes, but are tending to get larger each month to accommodate new copy protection schemes) to the master software disk one will be using in Drive A most of the time. Here it resides available for regular use.

The command COPYWRIT loads the program and brings a nice front end menu to the screen. It provides instructions for all succeeding moves. One then removes the master disk and places into A the disk to be copied. It is not harmed in the process and can be write protected by tab during the process if desired. Copying and formatting are simultaneous, so one can readily copy to a blank unformatted disk in Drive B.

COPYIPC uses the same command syntax as the DOS utility DISKCOPY. In a two

Super Low Prices on BASF Diskettes

SS/DD		DS/DD
96¢		\$1.16
each		each
Qty. 20		Qty. 20

BASF 5 1/4" Qualimetric Diskettes for half the manufacturer's suggested retail price. So reliable that BASF backs them up with an extraordinary lifetime warranty. Minimum order 20.

Call Toll Free: 1-800-527-4245
(In Texas: 1-800-441-9169) Midwest Magnetix, 600 South Sherman, Suite 102, Richardson, TX 75081

Midwest Magnetix Authorized Distributor BASF

Even Lower Prices on BONUS Diskettes

SS/DD		DS/DD
81¢	each,	\$1.05
\$8.91 per box		\$11.55 per box
Qty. 5 boxes		Qty. 5 boxes

Bonus value at a bargain price. 5 1/4" diskettes manufacturer guaranteed 100% error free. Manufactured with reinforcing hub rings; packed with write-protect tabs. Minimum order 5 boxes. Eleven diskettes per box.



Call Toll Free: 1-800-527-4245
(In Texas: 1-800-441-9169) Midwest Magnetix, 600 South Sherman, Suite 102, Richardson, TX 75081

Midwest Magnetix Authorized Distributor BONUS

Our Absolute Lowest Price on Midwest Magnetix Diskettes.

5 1/4" quality diskettes. Our "house brand" offers you one of the lowest prices around. Fully guaranteed. Shipped with Tyvek envelopes and Midwest Magnetix labels. Plastic wrapped, 100 per box.



5 1/4" SS/DD	5 1/4" DS/DD	3 1/2" SS/DD
55¢	69¢	\$1.99
each	each	each

Call Toll Free: 1-800-527-4245
(In Texas: 1-800-441-9169) Midwest Magnetix, 600 South Sherman, Suite 102, Richardson, TX 75081

Midwest Magnetix—Your Connection for Low Cost Computer Supplies

Call the Midwest Magnetix Hotline!

Ordering and SHIPPING Instructions

SHIPPING: Add \$3.00 for each 100 or fewer diskettes. Other items, add shipping charges as shown in addition to regular charges.

PAYMENT: We accept VISA, MasterCard and C.O.D.

TAXES: Texas residents add 6 1/2% sales tax.

Call Toll Free: 1-800-527-4245
(In Texas: 1-800-441-9169) Midwest Magnetix, 600 South Sherman, Suite 102, Richardson, TX 75081



3M Data Cartridges

Sold in cases of 10 only.
Add \$5.00 shipping per case of 10.

DC-100A.....	\$13.25
DC-1000.....	13.90
DC-300A.....	17.50
DC-300XL.....	20.25
DC-600A.....	22.50

Call Toll Free: 1-800-527-4245
(In Texas: 1-800-441-9169) Midwest Magnetix, 600 South Sherman, Suite 102, Richardson, TX 75081

Midwest Magnetix Authorized Distributor 3M

Terrific Discounts on Diskette Storage

Diskminder \$9.49 each
stores up to 75 diskettes.
Only \$9.49 each (+ 2.00 shipping).



Flip Pak 89¢ each
holds 10-12 diskettes. Only 89¢ each (+ 25¢ shipping). Both constructed of sturdy acrylic.



Call Toll Free: 1-800-527-4245
(In Texas: 1-800-441-9169) Midwest Magnetix, 600 South Sherman, Suite 102, Richardson, TX 75081

Midwest Magnetix—Your Connection for Low Cost Computer Supplies

Microsoft Releases Full FORTRAN For The Apple Macintosh

Microsoft Corporation recently announced the release of Microsoft® FORTRAN Compiler, Version 2.1, for the Apple® Macintosh™. The new compiler is a full implementation of the ANSI FORTRAN 77 standard, the most widely used standard for mainframe and minicomputers. As such, it allows programs to be ported to and from the Macintosh with little or no source code modification. In addition, the compiler offers many language features from the proposed ANSI FORTRAN 8X standard, increasing its ability to support structured programming.

The Microsoft FORTRAN Compiler comes with a broad range of productivity tools including a debugger, linker, librarian, editor, resource compiler, and Macintosh-oriented sample programs. In addition, it gives users access to nearly 500 Macintosh toolbox routines. These let users access Macintosh graphics features such as grafports, rectangles, ovals, arcs, polygons, and windows. They also give users access to other built-in Macintosh features, such as event queue

and desk accessory management.

The Microsoft FORTRAN Compiler, Version 2.1, is an updated version of a FORTRAN compiler previously marketed by Absoft. Microsoft has signed an agreement with Absoft to distribute an updated version of their FORTRAN compiler.

"We've been getting a lot of requests from Macintosh users for a full FORTRAN implementation," said Sandra Jacobson, Microsoft's Systems Languages Product Manager. "We felt the best way to meet the need quickly was to start with a good existing product. The Absoft FORTRAN Compiler was a solid product to begin with—and our updates have made it even stronger."

Educational Institutions, Engineers Are Key Markets

Microsoft expects the New FORTRAN compiler to have special appeal for two markets segments:

- **Educational institutions**, which have a large established Macintosh base. With the Microsoft FORTRAN Compiler, schools can teach stan-

dard ANSI FORTRAN 77 without incurring the cost of mainframe or minicomputer use. In addition, the compiler's powerful source language debugger can be used to clearly demonstrate the effect of each language element.

- **Engineering professionals**, who can combine FORTRAN's number-crunching capabilities with the Macintosh's powerful graphics to form their own low-cost computer-aided engineering (CAE) and computer-aided design (CAD) systems.

In addition to marketing the new compiler through its standard retail outlets, Microsoft will be marketing it through the Apple Consortium.

New Capabilities Added

In updating the product, Microsoft worked with Absoft to add several significant features:

- **More Efficient Compiler.** The new compiler uses registers more efficiently, making code more compact and speeding execution.

- **New Linker.** The linker has been completely rewritten to

provide both recognition of procedure entry points and improved speed.

- **More Sample Programs.** The new compiler comes with a greatly expanded set of sample programs, to help users incorporate some of the more sophisticated Macintosh features into their programs.

- **More Language Extensions.** The language syntax has been extended to include structured programming constructs, such as DO WHILE and END DO statements. These extensions also increase the portability of programs between the Macintosh and the VAX.

- **Optional Case Sensitivity.** Users can choose to maintain a differentiation between upper- and lower-case letters or to fold symbolic names to upper case for situations where the distinction is unnecessary.

- **New Intrinsic Functions.** Two additional intrinsic functions—ADJUSTL and ADJUSTR—have been added for left and right character justification.

- **16-Bit Variables.** Users can change the implicit size of both logical and integer variables from 32 bits to 16 bits. This feature is useful for applica-

tions ported to the Macintosh from a 16-bit machine, since it minimizes the need for source code changes.

- **Latest Apple Software.** The compiler comes with the latest versions of many Apple utilities, including the finder, editor, and resource compiler.

Minimum system requirements for the Microsoft FORTRAN Compiler are a 128K Macintosh and one disk drive.

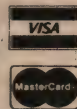
The product retails for \$295 and is available at all Microsoft retail outlets. Current users of the Absoft product can purchase a system upgrade kit for \$100 by contacting Microsoft at 1-800-426-9400 (in Washington, call 206-828-8088), or write to Microsoft Corporation Customer Service Department, 10700 Northup Way, Box 97200, Bellevue, Washington 98009.

Microsoft Corporation manufactures and sells a wide range of software operating systems, languages, application programs, books, and hardware for the microcomputer marketplace.

Mention that you read about it in the *Computer Shopper*. •

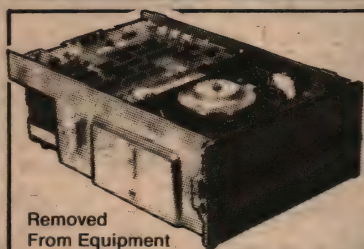
H&R CORPORATION
A HERBACH & RADEMAN COMPANY
401 EAST ERIE AVENUE
PHILADELPHIA, PA 19134

Phone your orders to:
1-215-426-1708
For mail orders: Checks,
Master Card & Visa accepted.
[PA & NJ residents add 6% sales tax]



**ALL ITEMS WARRANTED
30 DAYS: FULL CREDIT
OR REFUND.**

To receive your FREE copy of
H & R Corporations's catalog
'THIS MONTH', call 215-426-1708 or
write to 401 E. Erie Ave., Phila., PA 19134



8" DISK DRIVES

Excellent Condition

SUGART #851
Shipping & Handling \$5.00
CS23K657 \$149.50
SUGART #800-2
Single sided, double density.
Shipping & Handling \$4.75
CS23K438 \$99.95

Removed
From Equipment

COMPUTER POWER SUPPLY

Outputs +24, +12, +5 & -12 VDC



BOSCHERT
Mod OL80-3549PR.
Solid state switching
type supply with se-
lectable input of VAC
and outputs of +24
VDC 3 A, +12 VDC
0.5 A, +5 VDC 3 A,
and -12 VDC 0.5 A.

Designed for apparatus mounting. Supplied with line filter on input. Designed for use with CS23K438 Floppy Disk (can power two of these units simultaneously). O/A size, 15 1/2" x 4 1/2" x 1 1/2" H. Supplied with schematic. New. Shipping & Handling, \$2.75

H&R#CS23K439

\$49.50

COMPUTER KEYBOARD



Standard Type with
Cross Point Matrixing
Sejin/Futaba #KB-48B.

Mfd. for Texas Instr. Personal Computer (#1039019-3). A standard 'QWERTY' alpha-numeric key board with additional function buttons for 'SHIFT', 'ALPHA-LOCK', 'CTRL', 'ENTER' and 'FCTN'. Assembly contains 47 S.P.S.T. switches with caps 3/4" sq. x 1/2" H. Light gray color with dark gray legends; 5 1/16" long 'space bar'. Designed to mount in a cutout of approx. 9 W x 4" H, the printed circuit board is terminated with a 1 1/4" length of 15-conductor flat cable with attached 15-pin female header connector. New. Shipping & Handling, \$2.60.

H&R#CS23K430

\$4.50 EA.

5 @ \$4.25 EA.

ASCII KEYBOARD

Mfd. for Coleco®
Adam®



This 75 key unit with 21 user defined keys is ASCII 8 BIT serial output type. All connections via a 6 pin female modular connector at rear. Unit is housed in an attractive light beige plastic case, 15 1/2" x 6 1/2" x 2 1/2" H; with non skid rubber feet. Complete with connecting cord & documentation. New. Shpg & Hdlg. \$2.60.

H&R#CS23K665

\$19.95 EA.

4 @ \$17.50 EA.

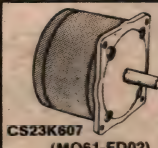
FRACTIONAL H.P. SYNC MOTOR 1800 RPM — Reversible
4-pole, 1800 RPM sync motor (115 VAC) for use in floppy disc drives. Torque 6.72/5.6 oz-in. Requires 5 mfd capacitor. Motor, 2 1/4" x 2 1/2" sq; shaft, 1 x 5/16" dia. with flat. Supplied with hookup instructions. New. Shipping & Handling \$2.60.

H&R#CS23K122

\$12.50

5 mfd Capacitor for above. H&R#Q6051 \$2.00 EA.

..... OEM & DEALER LARGE QUANTITY INQUIRIES INVITED.



CS23K607

(MO61-FD02)

CS23K382

(MO91-FD6009)

CS23K311

(MO91-FD06)

CS23K003

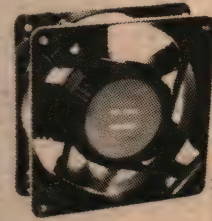
(SS250-1002)

SLO-SYN® DC STEPPING MOTORS

RATED 200 (1.8°) STEPS PER REVOLUTION

Volts DC	5	1.8	2.6	9
Amps/ Winding	1	4.7	3.1	1.55
Min. Hold Torque Oz-In	53	150	150	625
Thrust Load-lbs	25	50	50	50
Shaft	3/4 x 1/16	3/4 x 1/8	3/4 x 1/8	3/4 x 1/4
Condition	Excellent	New	New	New
PRICE	\$14.50	\$44.50	\$49.50	\$74.50
Shpg & Handling	\$2.60	\$2.60	\$2.60	\$3.50
ORDER #	CS23K607	CS23K382	CS23K311	CS23K003

Ideal for cooling mini computers,
terminals, printers & power supplies.



**ROTRON
TUBEAXIAL®
109 CFM
FANS*
LOW NOISE**
Acoustic rating
NC-22 approx.

5 plastic feather edged blades. Lifetime lubricated sleeve bearings; can be mounted for intake or exhaust. Die cast frame, 4 1/16" sq. x 1 1/2" thk. New. Shipping & Handling \$2.60.

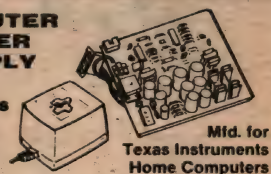
1 15/60, 20 Watts
With quick connect/ solder terminals.
H&R#CS23K670 \$12.95

DUAL VOLTAGE 1 15/230 V, 60 Hz
With 12" color coded wire leads.
H&R#CS23K671 \$12.95

*NAME PLATE HAS BEEN REMOVED BY MFR.

COMPUTER POWER SUPPLY

3 DC Outputs
+12, -5
& +5 Volts



Input 120 VAC, 60 Hz, 40 Watts. Outputs +12 VDC @ 0.35 Amps, +5 @ 1.2 and -5 @ 0.12. Excellent reg-ulation and low ripple. Consists of component circuit board (4 1/4 x 4 1/4 x 1 1/4") including "on-off" switch and separate transformer (3 1/4 x 2 1/4 x 2 1/4") with AC line cord & connector cable with plug. Supplied with termination diagram. New. Shpg & Handling, \$2.60.
H&R#CS23K520 \$9.95

Copy Protection Continued from page 162

floppy system, the command is:

A>copyiipc a: b:

In a single drive system, such as PC Jr. (which has its own version by the way), copy either from A to B or from A to A, swapping source and destination disks when instructed to do so by the screen. The number of swaps necessary is determined by the size of installed RAM.

Both programs provide a

valuable and unlooked-for service to AT users whose systems have "high capacity" or "high density" (HD) drives. IBM declares that these new 1.2MB drives are upward compatible with the older 363KB floppy drives on the PC, XT, and Jr. That is, the new drives will read the double density disks; but IBM does not warrant they will write to them reliably; and IBM says the HD drives cannot format the cheaper disks at all.

Neither IBM, nor the publishers of COPYWRIT and COPYIIPC, tell us that the

copy breaker programs enable the AT user both to copy and to format 363KB disks which can be run normally on the older computers. An AT user with dual HD drives can still copy protected software on his machine and have it run perfectly well on a PC. To format 362KB on a HD drive, one needs only to copy, using the copy breaker program, a model disk already formatted on the PC. One can in this way make as many copies as desired of the model and write to them on either kind of drive. In this manner, the HD drives and the AT becomes fully compatible both upward and downward with the PC, XT, and Jr.

McQuaid's reference to electronic bulletin boards can be easily verified. For example, here is a patch taken from a local and presumably legal telephone network. It is designed to break the copy protection scheme on Easywriter 1.1 and can be written with the standard DEBUG utility which comes free with DOS. (See chapter on DEBUG below for details on operations of the utility.)

UNPROTECTING
EASYWRITER 1.1 - A
PUBLIC SERVICE ANNOUNCEMENT BY:
CHARLES S. HERTZ, JR.,
M.D., 534 ROLAND AVE.,
JACKSON, TN 38301

SOURCE ID TCZ599

EasyWriter 1.1's copy-protection scheme seems to depend on the existence of a bizarrely formatted track 39, and a single subroutine that verifies the existence of this track. This subroutine is located in the file IBM88VMI.COM at offset hex 196, and is invoked by a CALL instruction located at offset hex 180 in the same file.

The subroutine checks to see if a sector number 80 exists on track 39 — it does on the original EasyWriter diskette, but of course does not on a normally formatted diskette. If the subroutine cannot verify the existence of the sector, then it returns values such that the calling program immediately executes an interrupt 20H, i.e. terminates and returns to DOS. Examination of the code shows that it is necessary only to substitute three 1-byte NOP's (null operations) for the 3-byte CALL statement — thus, the subroutine is never executed, and track 39 is never checked.

The substitution can be made easily with the DOS utility DEBUG. The substitution can be made directly on the original EasyWriter diskette (or the single "authorized" copy); or, for the squeamish, on a diskette to which the EasyWriter files have been copied with a "copy *.*" command. After the patch, the files can be copied (but only with copy *.* if using the original diskette as the source) as often as desired to any type DOS formatted diskette, and the program will run without a hitch.

Note that if you copy to a

CompPro

QUALITY 5¼" DISKETTES LIFETIME WARRANTY

	1-99	100-499	500-999	1000+
SS/DD	.70	.65	.60	Call
DS/DD	.80	.75	.70	Call
Tyvek Sleeves	.06	.06	.06	Call
Label Kits	.20	.20	.20	Call

CompPro BRAND BOXED PRODUCT

10 5¼" Diskettes in Tyvek Sleeves with a Label Kit in a Custom Printed Blue CompPro Box. LIFETIME WARRANTY!!

	1-9	10-49	50-99	100+
SS/DD	8.50	8.00	7.50	Call
DS/DD	9.50	9.00	8.50	Call
3½" Sony Brand SS/DD	26.00	25.00	24.00	Call

DX-85 (Holds 100 Diskettes w/Lock & Key).....\$ 9.50
Disk Doubler (Doubles Diskette Capacity).....6.00
Surge Suppressor (Six Outlet, Master Switch).....14.00
Apple Cooling Fan (Surge Protection, Dual Outlets) ...22.00

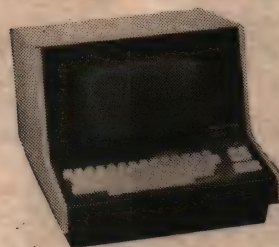
For Quantities Not Listed Call For Quotation!!
We Carry Most Major Ribbons! Call for Pricing!
Call Us For All Of Your Computer Accessory Needs!

Shipping 5% Of Order (Minimum \$2.50), Plus \$1.90 For C.O.D.

Data Dynamics

2360 PACIFIC AVENUE, SUITE B
LONG BEACH, CALIFORNIA 90806
(213) 424-1172 (Call Collect!!!)

Hazeltine SPECIAL



NOW AVAILABLE on the surplus market, the model 1200 from Hazeltine. 12 in. CRT-24 lines x 80 char. - ASC II Keyboard - Half or Full duplex - 110 to 4800 Baud - RS 232c compatible - Bell 103, 212A compatible - Includes 10 ft. RS 232 cable. All units are used, fully tested and guaranteed for 30 days.
PENRIL MODEM 300/1200 Auto Answer, 103, 212A compatible. Used, 30 day guarantee.
165⁰⁰

VISUAL TECHNOLOGIES
P.O. Box 13054 OF
Arlington, TX. 76013 TEXAS
817-261-8031

SPECIAL
ONLY
\$149

Includes shipping
and handling checks
or money order, 10 days
for checks, Texas
Res. add 5% sales tax.

Continued on page 165



CALL NOW! 1-800-527-1789

SOLID TEAKWOOD ROLL-TOP DISKETTE CABINETS

— NOW AVAILABLE ONLY THROUGH THIS EXCLUSIVE OFFER —

- Handmade from one of the rarest and most exotic woods in the world — TEAKWOOD
- Beautifully designed for the home and office
- Makes an affordable, elegant gift
- Finest quality craftsmanship
- Super smooth roll-top action

— CALL NOW - WHILE SUPPLIES LAST! —

FD-140
Hold up to 140
5¼" Floppy Disks
\$48.95
with lock

FD-100
Holds up to 100
5¼" Floppy Disks
\$34.95
ALL POSTAGE AND FREIGHT INCLUDED

FD-70
Holds up to 70
5¼" Floppy Disks
\$29.95

MD-64
Holds up to 64
3½" Micro Disks
\$24.95

TEAK-TECH™

The Mark of Quality

Distributor/Dealer Inquiries Invited
Send Check or Money Order to:

TEAK-TECH DESIGNS • P.O. Box 670234 • Dallas, Texas 75367 • 214-361-6739

Copy Protection

Continued from page 164

DOS 2 diskette, but originally installed DOS 1.1, you should replace the DOS 1.1 COMMAND.COM, and the utilities FORMAT, DISKCOPY, etc., with their DOS 2 versions. The files can also be copied to simulated disk, or hard disk; since EasyWriter expects to find programs on Drive A, and data on Drive B, appropriate use of the DOS 2 ASSIGN command will be necessary in the latter instances (typically ASSIGN A=C B=C).

For DEBUG: First, invoke DEBUG from the DOS diskette. Place the EasyWriter diskette (again, be sure it is not write protected) in Drive A. At the DEBUG prompt, type in ibm88vmi.com, then hit [Enter]. At the next prompt, type 1 (that's the letter, not the number), and [Enter]. At the next prompt, type e cs:0280, and [Enter]. Debug responds with xxxx:0280 E3. WITH-OUT hitting [Enter], type 90. Then hit the space bar; DEBUG responds with 13. Type 90, and hit the space bar again. DEBUG responds with 00. Type 90, and now hit [Enter]. At the next DEBUG prompt, type w (to write the changes) and [Enter]; then, at the next prompt, type q (to quit) and [Enter]. That's all.

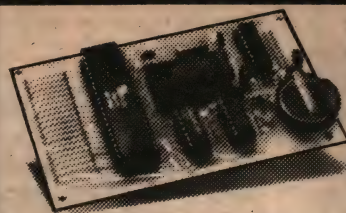
Regards, Charles...

Piracy for Profit

The most clear-cut case of unacceptable piracy is piracy for profit. Hong Kong should be restrained through diplomatic action and international agreements. Mail-order merchants of "returnable software" who charge a restocking fee should perhaps be kept from advertising in reputable computer magazines by self-policing codes adopted by the publishers. If that doesn't happen, software makers can take a few of them to court and close them down.

Large scale institutions that make casual copying a way of life can be constrained by court actions such as that recently filed by MicroPro. Obviously, the use of unregistered software on the hard disk of major corporations and large institutions can be determined and legal settlements sought.

Piracy for profit can be dealt with in the normal ways of civil and criminal law. Proving a case can be a subtle and difficult process, but that is true in all kinds of civil suits, and at least presents no extraordinary dilemmas. The main function of such proceedings would be prevention, to give notice to other large organizations that casual



Ztime-I CALENDAR/CLOCK \$69 KIT NOW WITH FILE DATE STAMPING!

- Works with any Z-80 based computer.
- Currently being used in Ampro, Kaypro 2, 4 & 10, Morrow, Northstar, Osborne, Xerox, Zorba and many other computers.
- Piggybacks in Z80 socket.
- Uses National MM58167 clock chip, as featured in May '82 Byte.
- Battery backup keeps time with CPU power off!
- Optional software is available for file date stamping, screen time displays, etc.
- Specify computer type when ordering.
- Packages available:

Fully assembled and tested	\$99.
Complete kit	\$69.
Bare board and software	\$29.
UPS ground shipping	\$ 3.

MASTERCARD, VISA, PERSONAL CHECKS,
MONEY ORDERS & C.O.D.'S ACCEPTED.

N.Y. STATE RESIDENTS ADD 8% SALES TAX



KENMORE
COMPUTER
TECHNOLOGIES

P.O. Box 635, Kenmore, New York 14217 (716) 877-0817

BUY DIRECT AND SAVE IBM COMPATIBLE

384K MULTIFUNCTION CARD (AST 6 PAK Compatible) OK	
Complete w/serial, C/C, Par, Disk, Game adapter incl	\$137.00
MONO/GRAPHIC (w/Printer) Ver II (Hercules compatible)	\$137.00
MONOCHROME CARD	\$ 87.00
COLOR GRAPHIC CARD w/Manual (RGB & Composite)	\$109.00
PARALLEL PRINTER CARD	\$ 30.00
RS232C (Supports 2 Adapter) 1 Optional	\$ 40.00
FLOPPY DISK CONTROLLER 2 Internal & 2 External w/Cable	\$ 65.00
GAME CARD - Supports 2 IBM Joy Sticks	\$ 25.00
512K RAM CARD - OK	\$ 75.00
SUPER XT MOTHER BOARD w/8 Slots OK (IBM XT Compatible)	
w/BIOS Fully Tested & Assembled	\$209.00

APPLE COMPATIBLE

Z-80 CP/M Card (Microsoft Compatible)	\$ 39.00
80 COLUMN CARD w/Inverse (Videx compatible)	\$ 58.00
AUTOTERM 80 COL w/Inverse & Soft Switch (Videx comp)	\$ 68.00
EXTENDED 80 COL w/64K Apple IIe	\$ 58.00
DISK DRIVE II Interface Controller Card	\$ 39.00
EPSON PRINTER CARD (Parallel) w/Cable	\$ 37.00
GRAPHIC PARALLEL PRINTER CARD w/Cable	\$ 48.00
MICRO BUFFER GRAPHIC PRINTER CARD w/32K	\$ 99.00
128K RAM CARD w/Software & Instructions	
(Titan, Saturn compatible)	\$130.00
300 BAUD CARD MODEM w/Manual & Software -	
Auto Dial & Ans (Hayes IIe compatible)	\$ 99.00

ALL PRODUCTS FULLY ASSEMBLED, TESTED & WARRANTED

SEND FOR FREE CATALOG

SHIPPING & HANDLING:

Under \$100—10% Over \$100—5%

COMPUTER SUPPLY

P.O. BOX 164C, VALLEY STREAM, NY 11582
(516) 239-1855 Dealer Inquiries Invited

Apple Goodies

Grappler+ Comp. w/Cable	\$ 59
Z 80 CPM Card	\$ 49
1/2 Hight Drive	\$119
Apple Software	CALL
Extended 80 For IIe	\$ 59
Okidata 92 Imagewriter	\$399

MouSaver® \$4.95

The Pad That Saves Your Mouse
Made of fabric coated rubber

PANASONIC 1091

120 CPS NLQ Switch Epson Comp.

\$239

Monitors

Amdek 300 Green	\$115
Amdek 300 Amber	\$125
Amdek Color 600	\$425
Amdek Color 500	\$375

Hours: Mon - Sat 10 A.M. - 7 P.M.



3047 Indianola Ave.
Columbus, Ohio 43202

Retail Store Service

At Mail Order Prices

BAL \$295

Mac 535



100% Compatible
With Macintosh

ADDS PCI Subsidiary of NCR

- *256 K RAM
- *Serial & Parallel Ports
- *Keytronics Keyboard
- *Two 360K Disk Drives
- *Video Card
- *MS-DOS 2.11 & GW-Basic

\$1295

30 Day Money Back Guarantee Of 100% IBM Compatibility

Hard Drives for PC & XT

10 Meg Tandon 1/2 Ht	\$449
With Card & Cable	
20 Meg Tandon 1/2 Ht	\$599
With Card & Cable	

Boards For IBM

384K Multifunction OK	\$134
512K Memory OK	\$ 79
Mono Graph W/Printer	\$139
Color Graph W/Printer	\$149
Color Graphics No Print	\$105
Serial Card	\$ 59
Parallel Card	\$ 39

Hard Disk Drives and Complete Systems!

Specials on drives for

Sanyo • IBM & Compatibles • PCjr • Kaypro

(1100, 550, 775)

(All models)

If you own or are about to purchase one of the above computers, call SPC first for the Best Prices on the entire system, including the Hard Disk Drive. SPC can provide a complete system for substantially less than the total cost of individual parts. This is a cooperative marketing effort so **Distributor Inquiries are welcome.** We support the widest variety of fixed and removable drives available. We have what you need for all **Z80 and MS-DOS systems.**

COMPUTERS

Sanyo 550-2XT (10 MB internal system)	\$1895
Kaypro 2X+ 10.8 MB formatted	\$2595
Kaypro 2/84+ 10.8 MB formatted	\$1995

DRIVES

Diskit 5.7 MB Ext. (1st come)	\$795	Diskit 10+5R (combo)	\$2490
Diskit 10.8 MB Ext.	1295	Diskit 22+5R (combo)	2990
Diskit 10.8 MB Int./you do it EZ	1195	Diskit 10+10R (combo)	2790
Diskit 22 MB Ext.	1995	Diskit 22+10R (combo)	3190
Diskit 34 MB Ext.	2695	BIG! FAST!	
Diskit 5R (5 MB cartridge drive)	1495	Ultrastore 70 MB (30 MS)	\$3995
Diskit 10R (10 MB cartridge drive)	2195	Ultrastore 140 MB (30 MS)	4995

Call Now!

(619) 693-8611

Systems Peripheral Consultants

9747 Business Park Ave., San Diego, 92131

One Year Warranty
Cash discounts

Copy Protection Continued from page 165

business use of unlicensed software will not in the future be risk-free. It would not be unthinkable to call upon Congress to write a statute that would make such piracy, narrowly defined, a crime. This would permit the Justice Department to initiate its own cases and would permit the FBI to investigate charges against an alleged large-scale pirate.

To treat all cases of copying in this way would be a fundamental mistake. First, because such enforcement would only be possible in a police state. But this fact cannot be depended upon to deter attempts to apply such methods to all kinds of piracy. Such methods are to be avoided for a second and more important reason: It would be counter productive for the industry.

It is verboten in the industry to say a word in behalf of the pirate, but it needs to be spoken. Before looking for a

solution to the problem of piracy, one must understand its true nature. It doesn't help to treat all cases alike. There are many kinds of pirates, some are harmless, others are a positive asset to the community. How can that be?

Freedom Riders?

Just as hackers were the pioneers of the computer industry, so many software pirates are the unpaid salesmen and pilot-fish of software development and marketing. Some have called them "the freedom riders" of the home computer era! That is, they are forcing the end to exorbitant profits and bringing software down to prices that will allow the legitimate commercial marketplace to operate more realistically for the benefit of all. In addition, they mainly copy the programs that are successful, that already have a strong commercial market and viable profit margins to permit continued investment in R&D. Few steal programs that nobody wants, which are

doomed to failure anyway!

It is only common sense to surmise that most stolen copies do not compete directly with legitimate copies. Most people who need software and know what they want will buy it. They feel they need the whole package, including the advice and technical support of the local vendor, both before and after the sale. So who copies?

(1) Ma And Pa Users

Certainly some people do copy for their own use on home or small business computers. This is a group that does directly compete with legitimate sales. Although we lack actual numbers, personal observation suggests they are not a large number. Most such users are straight-shooters. In addition, they may not know that software can be copied; or do not trust such copies; or fear for the consequences of having contraband in their homes and places of business; or do not know how to copy; or do not know anyone from whom to copy. The cynical, who believe that

the vast majority will steal just because they can probably get away with it, are not realists.

Most laws are self-enforcing. The nation could not survive if the only laws obeyed were those with concrete and prompt sanctions. This kind of piracy has slight or no social implications, because well-advised copiers of this type copy only successful software than enjoys a strong registered clientele anyway and is not harmed. In fact, it may be helped, because the unauthorized users help to promote demand. They educate others and thus indirectly expand the authorized user base.

(2) The Freeloaders

Non-buyers are likely a much more significant group. These are people who may be using stolen software, but who would not be using it if they had to buy it. These may be termed "opportunistic" pirates. If they could not get their hands on good commercial software, they would manage some other way. They might not use computers at all, or they might struggle along with public domain or freeware, or they might settle for cheaper and inferior commercial products that are more affordable.

They generally stop acquiring and copying when they feel they have the best stuff for their own needs, and have learned to operate the programs comfortably. Like legitimate users, this group tends to be loyal to programs they have mastered, in which

they have much of their data files already invested.

They do not constitute a threat to market stability. Since they would not buy the software in any case, they do not compete with the above-ground market. In fact, their commitment to the product helps to sell legitimate copies. Users love to proselytize their peers, raving about the comparative felicities of WordStar over WordPerfect!

It is exactly this kind of sotto voice salesmanship which really creates demand and establishes a piece of software as preeminent in its field. Of course, to some of their friends, they might offer free copies. But by and large, it is the spontaneous positive glow that users radiate that creates and sustains demand, and most of the new enthusiasts will be the straight shooters we have previously characterized. The highest compliment that can be paid to any software is that the freeloaders elect to copy it!

(3) The Software Mavens

Hobbyists and collectors there are many. They only collect what they can steal, and their appetites are omnivorous and enormous. They want to collect everything there is, and they want to master every program's intricacies! They are no threat to the paid-up user base of any vendor. Quite the contrary, they are the greatest asset the community can have. Buyer and seller alike profit

Continued on page 167



Handicapper!



HORSE RACES

Thoroughbred factors include speed, class, past performance, post position, jockey record, beaten favorite and weight. Harness factors include speed, class, past performance, post position, driver record, breaking tendencies, beaten favorite and parking out. Greyhound factors include speed, past performance, favorite box, trainer record, maneuvering ability, beaten favorite and break speed.



HARNESS RACES

Now use your computer to improve your performance at the track! Separate programs for thoroughbreds, harness horses and greyhounds will rank the horses or dogs in each race. Data entry is quick and easy. Handicap a race in minutes and a whole card in less than an hour! All the information you need is readily available from the Racing Form, harness or dog track program. We even provide a chart showing you where to find it!



DOG RACES

We can't guarantee a winner every time. But if you use The Handicapper, follow our advice and wager wisely, you'll be a smarter and richer better. Available for IBM/Sanyo, Apple II Series, Commodore 64, TRS-80 Color, Model 100, TI99/4A. Price and availability information below. Specify system when ordering. VISA/MC welcome.

CALL TOLL FREE (ORDERS ONLY)
1-800-245-6228

Program	IBM/SANYO	APPLE II	COM 64	CoCo	TI99	MOD 100
Thoroughbred	\$49.95	\$49.95	\$34.95	\$34.95	\$34.95	\$34.95
Harness	\$49.95	\$49.95	\$34.95	\$34.95	\$34.95	\$34.95
Greyhound	\$49.95	\$49.95	\$34.95	\$34.95	N/A	N/A
Any Two	\$74.95	\$74.95	\$54.95	\$54.95	\$54.95	\$54.95
All Three	\$99.95	\$99.95	\$74.95	\$74.95	N/A	N/A

Federal Hill Software 8134 Scotts Level Rd. Baltimore, Md. 21208 (301) 521-4886

RIBBONS

Complete New Cartridges. NO Reloads
NO SHIPPING CHARGES ON PREPAID ORDERS
NO CREDIT CARD SURCHARGE
NO DELAY ON PERSONAL CHECKS

RIBBON CARTRIDGES AND SPOOLS		PRICE EACH IN QUANTITY OF		
PRINTER MODEL		3	6	12
Anadex 9500/9600		\$9.50	9.20	8.90
Apple DMP 1/2x14 yds		\$5.50	5.20	4.90
Centronics 700 Zip Pack, 9/16x15 yds		\$3.50	3.30	3.10
C. Itoh Prowriter 1/2x14 yds		\$5.50	5.20	4.90
Diablo Hytype II Multistrike 5/16x135 yds		\$4.50	4.20	3.90
Diablo Hytype II Nylon, 5/16x21 yds		\$4.55	4.25	3.95
Digital LA 30/36 1/2x36 yds		\$4.80	4.50	4.20
Epson MX70/MX80 2x20 yds		\$5.00	4.75	4.50
Epson MX100 1/2x30 yds		\$7.50	7.25	7.00
Epson MX100 Refill pack 1/2x30 yds		\$5.75	5.50	5.25
Gemini 10/15X		\$2.40	2.20	2.00
IDS Microprism		\$5.60	5.25	4.90
Juki 6100		\$3.50	3.30	3.00
NEC Spinwriter 5500/7700 M/Strike 1/4x133 yds		\$4.95	4.65	4.35
NEC Spinwriter 5500/7700 Nylon 1/2x15 yds		\$5.00	4.75	4.50
Okidata - 80, 82, 83 1/2x18 yds		\$2.40	2.20	2.00
Okidata 84 1/2x40 yds		\$4.75	4.50	4.20
Qume Nylon 1/4x15 yds		\$4.00	3.80	3.60
Qume Multistrike 1/4x98 yds		\$3.90	3.70	3.50
Radio Shack LPVI-VIII 1/2x12 yds		\$5.60	5.25	4.90
Teletype 43 1/4x13 yds		\$7.40	7.00	6.50
Wang Multistrike 2281/5581/6581 5/16x180 yds		\$4.85	4.50	4.25
Xerox 800/850/860 Multistrike 5/16x155 yds		\$5.50	5.10	4.60

And Hundreds More!

TERMS: Money Order, VISA, Mastercard, Personal Checks accepted with no delay.
C.O.D.: Add \$3.00 per order. FL residents add 5% Sales.

BELLMARK BUSINESS SUPPLIES

1791 Blount Rd. - Unit 1005 Pompano Beach, FL 33069
(305) 972-6152

Copy Protection Continued from page 166

from the unpaid status of these people. They become the local Gurus of computer software, the unpaid and inexhaustible technical support base that keeps the whole enterprise going.

They constitute the web of evaluation whose judgements ultimately play a major influence upon what software will live and what will deserve to die. Using copy protection breaker programs and collecting into their ravenous maws all the protected and unprotected stuff there is, they devote the time and effort to learning programs just for the fun of it. They do what busy computer shop personnel are too busy to do. Many such stores soon learn the value of letting some software mavens sample their dealer demonstration disks.

When customers need help and advice, the salesmen turn to the hobbyists and collectors whom they know. When technical support is hard to get from the manufacturer, and it almost always is, the local Guru is right at hand and eager to be asked. Because such people tend to hang out at computer stores, their identities are

Continued on page 168

Stride Expands 440 Line

Stride Micro has introduced a new floppy-based model of its powerful Stride 440 microcomputer system.

The new machine is available in a single-floppy configuration with the standard 256K bytes of RAM but retains the capability to be upgraded to accommodate 16 users with a 33M byte Winchester hard disk drive and 8M bytes of RAM.

The floppy-based 440 will allow sophisticated users to purchase a low-cost entry-level system with the ability to expand to the full "minicomputer" power of the 440.

Marketed as a stand-alone system, the 440 can be part of a more powerful network system that uses either Stride's multiuser capabilities or Omninet, a built-in local area network.

Stride President, Rod Coleman, said, "Like the original Stride 440, the new floppy-based system fits nicely into the 400 Series product line. It is the perfect solution for the user who wants to fill today's needs while planning for tomorrow's growth. It can become part of a networked system, thus mak-

ing it ideal for the small-business user.

"With a suggested retail price of \$2,995, the new 440 will offer our users a broader growth path at a price comparable to many of today's personal computers."

The new 440 comes standard with 10MHz 68000 processor, VMEbus, 256K bytes of RAM, a 640K byte 5 1/4" floppy disk, four RS-232C serial ports, Omninet local area network hardware, Liaison networking software, a Centronics parallel port, 4K bytes of CMOS battery-backed RAM, Teletalker communications software and the p-System, operating system. Eleven other operating systems, including UNIX V, CP/M-68K and RM/COS are also available.

Additional options are a 12 MHz microprocessor, a second 640K byte floppy disk, floating point math processor, memory management unit, NOD hands-free cursor control, high-speed graphics, more than 30 language compilers and hundreds of application programs.

The new model is available

from Stride and authorized Stride dealers throughout the world.

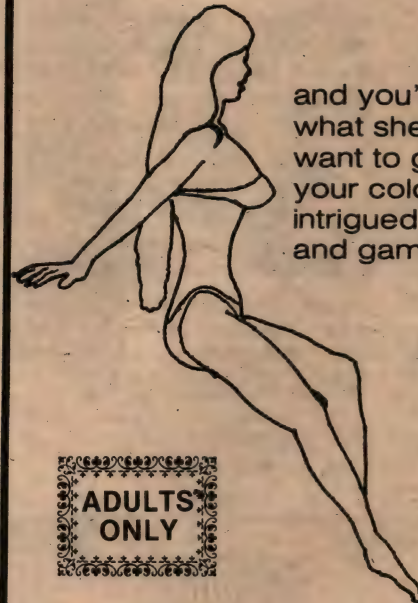
Stride Micro, formerly Sage Computer, was founded in 1981 to manufacture and market high performance 68000-based microcomputer systems at competitive prices. Stride headquarters are located

in Reno, Nevada, with regional offices in Boston, Dallas and London and distributors in over 35 countries worldwide.

For more information contact Stride Micro, 4905 Energy Way, Reno, NV 89502, (702) 322-6868.

Mention that you read about it in the *Computer Shopper*. ●

RANDY LIKES TO PLAY GAMES



and you'll be delighted to see what she loses. If you want to get the most from your color graphics, if you're intrigued by sexy conversation and games of logic, then

RANDI'S GAME

is for you.

Send \$24
check or money order to:
WILL ACCEPT VISA OR MASTERCARD



FOR THE
APPLE II SERIES
Applesoft/DOS 3.3

SOFT D'LITE™
4809 Blossom
El Paso, TX. 79924
or call (915) 751-0122

TeleVideo Portable Computer Special

A \$1,600 value for only \$795

Purchase the TeleVideo TPC1, a full-featured portable computer, now and save more than \$800.00. The TPC1 comes standard with software that includes CP/M 2.2 as the operating system, (upgradable to CP/M+), plus *TeleWrite* (executive word processor), *TeleCalc* (spreadsheet), *TeleChart* (business graphics), and *Uniform* (a diskette compatibility program). The TPC1 also features a nine inch screen, two double sided double density slim-line disk drives providing 737K bytes of storage capacity, 64K of user memory (expandable to 128K), printer ports (centronics and RS232C), modem port, RJ11C SuperMouse port and much more to give you a complete business and word processing system.



Because it is a CP/M based system, there are hundreds of application programs and language compilers available to run on this system. In addition, Trailing Edge has made available *Uniform*, a program that allows you to use the TPC1 with a variety of personal computer formats (including IBM PC and MSDOS) and be free to exchange data and program disks with other computers without compatibility problems.

The TPC1 is sold complete with a 90 day parts and labor warranty and is fully supported by Trailing Edge's Technical Support division. So contact us today to learn more about the power and capabilities of the TPC1, at \$795.00, the supply won't last long.

Trailing Edge

213 Kenroy Lane • Suite 9 • Roseville, CA 95678
(916) 786-6550

Copy Protection Continued from page 167

known; in fact, many stores have learned to create their own Gurus, because it is much cheaper than having salesmen learn all of the programs that are sold.

Like the Hackers of an earlier time, the Mavens are probably the strongest asset of the commercial marketplace

for software. Out of their ranks come some of the best reviewers and writers on the subject. Even IBM distributes unreleased software to its internal user groups, in order to get the benefit of these unannounced experts, whose input has the invaluable function of bringing a lay user's point of view into the closed and insular hothouse of professional computer pro-

grammers and scientists.

Is There A Solution?

Following the example of mainframe licensing, the emerging micro environment is now distinctly moving away from copy protection, and toward "site licensing" arrangements, giving users master copies of programs, with documentation, and preferred on-site technical support, as well the right to make unlimited copies for internal

use, at reduced volume rates. The pressure for site-licensing is building and all the largest software companies now are signing such agreements. Lotus, Aston-Tate, Sorcim/IUS, Lifetree, Condor are leading the way.

Some problems create their own solutions, evading all of the best plans of mice and men. My view is that the problem is vastly over-rated. Software companies that are not making it need to blame their

unsuccess on something besides the quality of their products. In so far as piracy is perceived as a problem, there are a number of new directions.

ROM-based (that is, Read Only Memory installed permanently on a chip) software some view as promising. Programmable R/O chips of large capacity are getting cheaper every day. Further, we see the imminent arrival of R/O and R/W (Read and Write reprogrammable devices) optical storage. The convenience and speed of built-in software may win many converts in the next few years.

Obviously, if the software can be read by the processor, it can be dumped into memory and there accessed, copied to disk, or down-loaded to other machines, regardless of efforts to protect it from piracy. Only if the public makes a massive swing to ROM-based software is it likely to cool piracy in a significant way. People would be getting all the software they need when they select a computer. The cost would be marginal, the advantages persuasive. There would be no incentive to port programs to other machines. That is the reasoning.

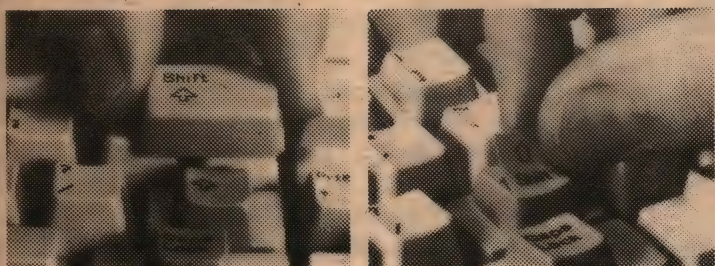
The fallacy arises from the fact that the frontiers of software by their very nature are not fixed and stable, but rather volatile and expansive. It will not be possible to freeze people in yesterday's sensational software; nor is it desirable to do so!

Built-in programs will mainly get their impetus from the reduction initial software acquisition costs to the buyer. But that is happening all over the software market, and is probably the best long term savior of property rights.

This is already working on a grand scale, thanks to the Mavens and pirates of all varieties. Borland, IBM, and some others have led the way to take the outrageous steam out of prices. As software costs descend to the levels of other products of intellect, like books and furniture design, most people will not hesitate to purchase whatever they need. Some copying will continue, but will be less significant than ever in terms of undermining the legitimate marketplace, bankrupting companies, and destroying investment in R&D (Research & Development).

The best guarantee that innovation will be rewarded with financial success is the process of innovation itself. So long as a string of new and exciting products is coming down the pike, a company committed to R&D will find its efforts rewarded. In all traditional in-

COVER STORY



Touchdown™ Key Overlays provide new or additional PC keyboard commands for compatibility with your software programs. Made of heavy, non-glare material similar to the original keytops, with commands printed on the underside for durability. . . . These are not ordinary stick-on labels! Hoooleon also makes custom overlays to your exact specs, including foreign language and special symbols. *Touchdown™ Keytop Expanders* enlarge small keys (Return, Shift, etc.) on the IBM PC and most look-alikes. They fasten securely over existing keys with a special adhesive provided, yet are easily removed without damage to the keyboard.

P. O. Box 201, Dept. CS, Cornville, AZ 86325

CUSTOM KEY OVERLAYS can be made to your exact specs. at a much lower cost than engraving the keys.

KEYTOP EXPANDERS		Qty.	Price*
IBM PC, PC/XT, PC Port. (12 keys)	\$21.95	Corona, Eagle Spirit, Qubie, Keytronic (10 keys)	\$21.95
IBM 5291 Display Station (13 keys)	21.95	IBM 3270 PC "Enter" (1-keytop)	3.95
Compaq, Columbia (10 keys)	21.95	Individual Expanders	2.75

KEY OVERLAYS		Qty.	Price*
5250/5251 (48 keytops/fronts)	\$21.95	Control Key English (5 keytops)	6.95
5520 (101 keytops)	29.95	Blank Overlays (99 keytops)	21.95
3270 (30 key fronts)	18.95	Do-it-yourself Kit (200+ pieces)	29.95
DisplayWrite 2 (36 keytops)	21.95	MultiMate (44 keytops)	29.95
DisplayWrite 3 (38 keytops)	21.95	EasyWriter II (29 tops/fronts/Handy Card)	29.95
Dvorak (43 keytops)	26.95	Lotus 1-2-3 (24 keytops/Handy Card)	29.95
Wordstar (29 keytops)	26.95	WordPerfect (32 keytops/Handy Card)	29.95

☐ Visa ☐ MasterCard Exp. Date _____
 Card # _____
 Visa or MC orders phone 602-634-7517
 Custom Overlay, Other Software Kits. Write for information.

TOTAL (Min. order \$10.00) \$ _____
 All prices include first class postage.
 (All orders shipped within 24 hours.)
 Arizona residents add 5% tax
 TOTAL ENCLOSED \$ _____

Microland

10600 Bellaire, Ste. 135 Houston, Texas 77072
(713) 498-2130

SOFTWARE

Lotus	\$289
Dbase III	349
Framework	349
Symphony	439
MS Basic compiler ..	249
MS Macro assembler ..	79
MS Cobol compiler ..	439
MS Fortran compiler ..	229
MS Pascal compiler ..	199
Flight simulator ...	35

HARD DISK

All HD include Western Digital controller&cables	
Seagate 10MB	\$495
Seagate 20MB	675
Microscience 10MB ..	495
Microscience 20MB ..	675

MEMORY CHIP

64K RAM set	\$6.75
256K RAM set	39.00

PRINTERS

Canon	
PW-1156A	\$455
PW-1080A	299
A-40	235
PJ-1080A	455
F-60	319
BJ-80	395
LBP-8A1	2519

Panasonic

1090	\$159
1091	255
1092	359
1093	465
3151	465

MONITORS

Roland MB142 ..	\$235
CC121 ..	405
Taxan 122	139
411	335
420-L	415
425	419
440	549

IBM

All systems include 256K Texan mono monitor.	
PC, 2 Drs	\$1845
1 Dr, 10MB	2265
1 Dr, 20MB	2465
XT, 2 Drs	\$2165
1 Dr, 10MB	2565
1 Dr, 20MB	2735



All systems include 256K DOS/GWBASIC, AT&T mono monitor	
2 Drs	\$1920
1 Drs, 10MB	2445
1 Drs, 20MB	2645

DISKETTES

Maxell DS/DD	\$19
Basf DS/DD	14
Nashua DS/DD	11

COMPAQ

All systems include 256K Compaq mono monitor.	
PORTABLE	
2 Drs	\$1920
1 Dr, 10MB	2395
1 Dr, 20MB	2575
2 Drs, 10MB	2545
DESKTOP	
1 Dr	\$2065
1 Dr, 10MB	2475
1 Dr, 20MB	2675

BOARDS

MF 100 6Pk	\$139
AST 6Pk	289
Color graphic/printer	139
Mono graphic/printer	165
Hayes 1200 B/soft ...	349
Hayes 1200	369

TAPE BACKUP

Interdyne 10MB	\$495
Irwin 10MB	509

TERMS AND CONDITIONS OF SALE

- Due to our low prices and assurance that all merchandise is new, unused product, all sales are final. Factory warranties in force.
- Items reflect cash discount and do not include delivery charges. Cashier check or money order processed immediately.
- Prices and availability subject to change without notice.
- Texas residents add 6 1/4% Sales Tax.

Continued on page 169

Omitted From October Issue

In The Computer Usage Log For IRS, this program was omitted inadvertently, from page 91 in the October issue.

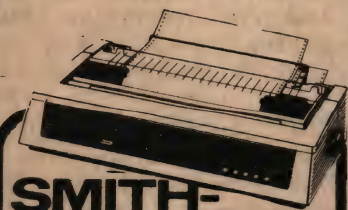
The program is required to initialize the LOG85MON FILE. It is only used once to create the file.

```
100 REM Create LOG85MON
    to start log
110 OPEN "LOG85MON"
    FOR OUTPUT AS 1
120 WRITE #1,"LOG85MON,"
    0, DATE$, TIME$
130 WRITE #1, 2, 10, DATE$,
    TIME$
140 CLOSE #1
150 END
```

Copy Protection
Continued from page 168

dustries, the value of copyrights and patents has steadily decreased in an age of rapid technological advance. Proprietary information, experience, and being first with some advance have been of greater significance than exclusive property rights to technology, process and design. Companies that reduce their R&D investments are doomed in any case, but it won't be software piracy that done them in, at all, but their own short-sightedness and lack of courage.

The buccaneers of software are not the enemies of innovation and market stability. They have a valuable role to play. They continue to expand the market for all software and to socialize new users into a wider range of applications than would otherwise be available to them. In the long run, and the industry must watch the donut and not the hole, this will stimulate demand and enlarge the market. Efforts invested in stopping piracy would be better put into developing and testing new software!



SMITH-CORONA
120 CPS, Graphics, Friction or
Tractor Feed
D-100 \$199
NATIONAL 800-544-4354
WATS LINE
GEORGIA RESIDENTS (404) 441-3112
magnum p.c.
5965 PEACHTREE CORNERS EAST
NORCROSS, GEORGIA 30071

ATTN: DEALERS

PROTO PC INC.
**YOUR BEST SOURCE FOR
DRIVES, RAM, CARDS, CAD & SERVICE!**

Proto PC offers the experience, reliability, and innovation you need to advance your business.

TRUST OUR EXPERIENCE AND REPUTATION.
We've been satisfying customers since 1976.
WE WANT YOU TO SUCCEED!

RELY ON OUR SUPPORT.
Our superior technical staff is here to serve you.
OUR EXPERTS ARE HERE TO HELP!

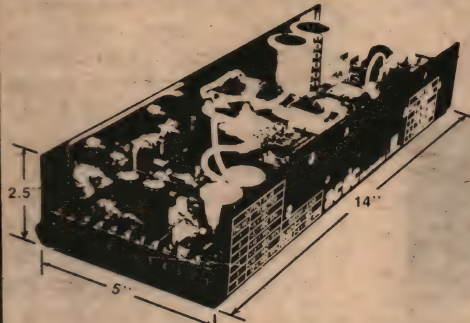
TAKE ADVANTAGE OF THE BEST WARRANTY AVAILABLE.
We back our hardware - FULL ONE YEAR WARRANTY.
WE'LL MAKE IT WORK FOR YOU!

BUY AT OUR LOW PRICES.
We're committed to QUALITY PRODUCTS at
COMPETITIVE PRICES. CALL US FOR LATEST QUOTES!

ASK ABOUT OUR OUTSTANDING QUANTITY DISCOUNTS!

CALL FOR LATEST QUOTES!

SUPER POWER SUPPLY



\$49!

LOOK!

+ 5v @ 30A!
12v @ 4.7A!
12v @ 4.7A!
220 WATTS!

LIMITED QUANTITY

ORDER NOW! \$29

CASE OF TEN

Special Features—

- Open frame construction
- "U" channel design optimizes thermal characteristics
- Demonstrated 20,000 hr MTBF thru life-tests
- Auxiliary Crowbar option
- Field selectable 115/230 VAC operation
- Unique proportional switching drive circuit
- Low profile package: 2.5" high
- Thermal shutdown and AC line fuse standard
- 24 hour, high-temp. AC cycled burn-in
- Floating, independent fully regulated outputs are adjustable (see specs)
- Common mode input filtering and soft start circuitry
- Shielded, vacuum varnish impregnated magnetic compon
- 100% computer tested
- U.L. recognized—File No. E48765
- 90 day warranty

TERMS:

PRICES LISTED Reflect Cash Discount For PREPAID or COD Cash Cashiers Check Personal/Business
Checks - 2 Weeks For Immediate Shipping, Telecheck - + 1% Visa/Master Card - + 4%

Proto PC Inc. SINCE 1976... CALL NOW! **612-644-4660**

HRS: 9 to 6 Mthru F 2439 Franklin Ave. St. Paul, MN 55114 TLX: 910 380 7623

★ APPLE ★ COMPAQ ★ AST ★

FUTURE BYTE A COMPUTER DISCOUNT STORE

FOR FURTHER INFORMATION CALL

(213) 208-0259 — (818) 906-1984

COMPUTERS

IBM PC 256K, 2DR ... \$1599
IBM XT, No hard disk ... \$1879
IBM AT, 20MB, 512K, SP\$4750
Compaq Desk Pro I ... \$1799
All Kaypros ... CALL

matted ... \$675
Rodime R0202E-33 Meg formatted ... \$935
CMI-6420-21.7 Meg formatted ... \$825
CMI-6640-Tulin 20MB for AT ... \$749

MONITORS

Taxan 440 Color ... \$559
Taxan 12" IBM Amber ... \$136
Taxan 12" IBM Green ... \$128
Taxan 220, Video ... \$262
Amdek ... ALL PRODUCTS
Princeton ... ALL PRODUCTS

PRINTERS

Dynex DX-15XL/Brother ... \$365
Okidata 92P ... \$355
Citizen MSP 10 ... \$319
Citizen MSP 15 ... \$495
Silver Reed 550 ... \$400
Abati (Demo) ... \$339
Toshiba 1340 ... \$665
Epson ... ALL PRODUCTS

MODEMS

Hayes 1200 ... \$379
Hayes 1200B ... \$369
Maxell 1200 ... \$249

SPECIALS

PC Paint w/brush ... \$140
Sidekick ... \$34
Kodak DSDD ... \$18.75

HARD DISK/TAPE BACK UP

IBM 10-Meg ... \$1400
Rodime 10MB w/Controller for
AT ... \$619
Rodime R0202E-21.7 Meg for-

SOFTWARE

MSS Word ... \$219
Multimate ... \$245
R-Base 4000 ... \$225
R-Base Clout ... \$129
Peachtree Bck-Basics ... \$239
Microsoft Basic Cmplr ... \$259
Turbo Pascal ... \$39
T. Pascal w/support ... \$66
3 Pak ... \$65
Word Plus ... \$439
Adv. DB Master ... \$375

MULTI FUNCTION CARDS

Ast 6 Pak 64K ... \$248
Ast 6 Pak 384K ... \$310
Ast Preview ... \$269
Ast Advantage ... \$379
AT-Partner ... \$299
Ast 6 Pak Compatible ... \$139
Hercules Compatible ... \$144
Quadran OK ... \$225
Generic copy ... \$179

VIDEO BOARDS

Hercules Mono ... \$289
Hercules Color ... \$165
Generic Mono or Color ... \$129
Taxan Mono Card ... \$149
Persyst Bob Board ... \$345
Taxan 555 for Ultra
Hi-Resolution ... \$270
Sigma 440 ... \$495

**ALL PRICES
ARE NEGOTIABLE**

★ HERCULES ★ HAYES ★ BIZ COMP ★

Serial

Parallel



only \$89.95

Connector Option \$10.00
CA Residents 6% tax
UPS Shipping \$3.00

Tigertronics
INCORPORATED

2734-C Johnson Drive
Post Office Box 3717
Ventura, California 93003



CALL (805) 658-7466 or 658-7467 For FAST Delivery



Printers! Plotters! Punches! Robots!

Convert What You Have To What You Want!

- ★ RS232 Serial
- ★ 8 Baud Rates
- ★ Latched Outputs
- ★ Centronics Parallel
- ★ Handshake Signals
- ★ Compact 3 1/4" x 4 1/4" x 1 1/2"

No longer will your peripheral choices be limited by the type of port you have available! Our new High Performance 700 Series Converters provide the missing link. Based on the latest in CMOS technology, these units feature full baud rate selection to 19.2K, with handshake signals to maximize transfer efficiency. Detailed documentation allows simplified installation. Order the Model 770 (Ser/Par) or Model 775 (Par/Ser) Today!

**Buffer Products
Coming Soon!**

Surplus Xerox Continued from page 74

cost of \$105.00. This was a way out but was still to expensive for the level of our project. Other sources led us to an outfit selling a CP/M compatible operating system, complete with source code for \$40.00, which could be adapted to an already existing CP/M BIOS. This was more our speed. Since we had purchased the original Xerox bios source code from Ferguson Engineering, with this compatible operating system, we would have a complete disk operating system. The compatible system was purchased,

and the work began. The name of this compatible system is MRS/OS and is available from OCCO, Inc. of Milford, MA. The first task was to produce a disk formatted for the Xerox 820-1. Inherent in this task was the problem of getting the MRS/OS system and the Xerox BIOS onto Xerox 5-1/4 disks, since all of our software at this point was on standard 8 inch SSSD CP/M format. Luckily, one of the members of the group has a CP/M computer that operates both 8 and 5-1/4 drives, both single and double density. More importantly, however, was the ability of this computer to read and write to

disks using the Xerox SSSD 5-1/4 format. Most of the early work was done on this computer. The only problem was that this computer could not format a disk in Xerox format. A program was written to format 5-1/4 single side single density disks in the Xerox format. The MRS/OS operating system was then assembled from its 8 inch distribution disk and stored as a DDT readable .COM file. The Xerox BIOS was then assembled, and converted to a DDT readable .HEX file, and stored. Using DDT, the two files were married together and stored using the CPM save command. Now

a disk operating system that would operate on the Xerox existed.

Our problems were not over yet. We now had a disk capable of being read and written to by the Xerox computer, but no way of moving the disk operating system to the system tracks so that the Xerox could load in the operating system on power up. Even more fundamental than this concern, we had no boot program on the disk so that the "A" command in the Xerox monitor could load it and boot the system. This may all seem confusing, and some explanation of how the operating system is stored and how the Xerox loads the operating system into memory is in order.

For example, on a standard 8 inch SSSD CP/M disk, the first two tracks, 0 and 1 are reserved for the disk operating system. The operating system cannot access these tracks, and their contents do not appear in the disk directory. The only way to read or write to these tracks is to use a CP/M utility program called Sysgen, which operates outside the normal boundaries. This program takes over management of the disk controller and makes direct calls to the CP/M BIOS, which is normally not permitted in CP/M programs, to ensure compatibility between CP/M computers. Since we did not have the Sysgen program correctly configured to transport to the Xerox format, we could not transport our new system to our formatted disk. The MRS/OS has a similar utility to perform this task, but in the case of MRS, MRS must be up and running before this pro-

gram can be accessed.

Along with this situation, the Xerox computer does not load in the operating system at power-up, but enters a monitor program that has various command options, including "BOOT" the operating system. The way the Xerox accomplishes this feat is to go to the first track first sector of the first drive, and load this sector into memory, and jump to the start address. What is expected here is that the sector contain a program that will load the disk operating system into the proper memory. This approach allows the disk operating system to be completely independent of the hardware configuration, even during the boot-up phase. This is a swell idea unless you don't happen to have the boot-up program.

We wrote our own version of a boot-up program and, using DDT (CP/M editor), placed this program in the proper location in the disk operating system .COM file. Now, all that remained was to get the operating system onto the operating system tracks, which are the first three tracks of a Xerox 5-1/4 SSSD disk. The Xerox monitor has a "Read Sector" command which allowed us to read the newly formatted disk, sector by sector, to find the sectors containing the new operating system. But Xerox did not think to include a "Write Sector" command to allow us to transport these sectors to their proper location on the system tracks. Included in the Xerox source code was the source for these monitor ROMS, so we set to writing a "Write Track" command for the monitor (this turned out to be a trivial task), assembled the new monitor ROM, and had a member of our group burn the EPROM from our assembly file. We installed the new monitor with the write track command and went about the business of transferring, sector by sector, the new operating system to the system tracks. Finally, the moment of truth had come. I pressed the "A" key, which is the "Boot Monitor" command, and "Return." The drives engaged, and the unfamiliar, but welcome, A. prompt of the MRS/OS operating system appeared. I typed "SSP DIR" (SSP is the MRS/OS collection of utility programs), and the disk directory appeared on the screen. Success. Now I would have to make good on my threat to make this system able to use double sided 80 track 5-1/4 drives.

We were over the top now with a working computer. The first order of business was to get a format program running

dBASE II PROGRAMMERS

CHECK

CHECK provides easy maintenance and debugging of dBASE II command files by identifying improper nesting of conditional commands and indenting for each additional nest. When a nesting error is located, you are provided with the correct logical closing based on the last conditional command being processed. Execution speed may be improved by optionally removing comments, blanks, and tabs from your program. Leading command words are reduced to four characters and may be output in upper or lower case. File size is further reduced by eliminating the continuation symbol "...". Extensive parameters may be passed in the command line for ease of use and flexibility from a system prompt. Batch processing is accomplished by using a "CHECK" file containing the desired commands. Results may be displayed on the screen or suppressed to decrease execution time. Errors may be placed on the screen with pauses or sent to the printer for unattended operation. "Quick" check in memory at speeds up to 5000 lines per minute on a 8mhz 80186 and 8" floppy drives. As an added feature, bit seven and WordStar hyphens may be stripped from corrupted files. Cost is \$49.00.

ART

ART is a RunTime command file providing the ability to use dBASE II RunTime from a "!" prompt. Source code and RECODE are included allowing you to customize the program. ART costs \$29.00, with documentation in a disk file.

PROGRAMMER'S PACKAGE

CHECK, REPAIR, & DECODE/RECODE all for \$99.00.

Advertised prices include a \$5.00 S&H charge. Programs are available in either MS-DOS, CP/M 80, or CP/M 86 and have a 30 day money back guarantee. We can furnish our programs or download your programs to over 200 CP/M disk formats, including APPLE, and seven different MS-DOS formats. The entire SIG/M and CP/MUG libraries are also available.

HILCO

HILCO SOFTWARE
304 North 17th Street
Mount Vernon, WA 98273
(206) 428-0475

8 AM to 5 PM Pacific Time Monday thru Friday.
dBASE II & RunTime are trademarks of Ashton-Tate.

REPAIR

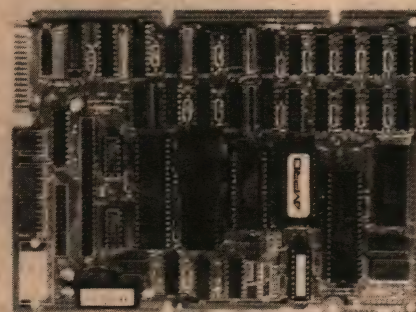
REPAIR recovers dBASE II ".DBF" files by: resetting the record counter in the header, offsetting any number of characters starting at a specified record number, and removing imbedded end of file markers. The program requires about four seconds for each 1K; as, each byte must be individually checked. An on-line "HELP" function provides all necessary documentation for program operation. Order now, so you will have it when you need it. Cost is \$29.00.

DECODE / RECODE

DECODE unscrambles dBase II RunTime ".CMD" or ".PRG" files into ASCII text source files. It will not decode the linked command files used in the sixteen bit dBASE II 2.43 RunTime or the Champion Accounting program. RECODE scrambles your modified ASCII command files back into RunTime format. Batch processing, command line options, and printer options are similar to those in CHECK. Scrambled files may be run on regular versions of dBASE II 2.4, 2.41, and 2.43. DECODE and RECODE together cost \$49.00.

Z80A FOR CP/M 2.2

LITTLE BOARD™/Plus
8 BIT



FEATURES:

- * 4 MHZ Z80A CPU
- * 64K RAM
- * COMES WITH CP/M 2.2 DISKETTE + ZCPR3
- * READS OR WRITES TO DOZENS OF POPULAR 5 1/4 IN. FLOPPY FORMATS
- * 2732 BOOT EPROM
- * USE +5VDC @ .95A AND +12VDC 50MA
- * WORKS WITH 40 OR 80 TRACK DRIVES

\$319.00
(A & T WITH CP/M 2.2)

THE LITTLE BOARD™

NEW! TWO BOARDS TO CHOOSE FROM!
THIRD GENERATION SINGLE BOARD COMPUTERS!

COMMON FEATURES OF BOTH BOARDS:

- * MOUNTS DIRECTLY TO 5 1/4 IN. DISK DRIVE
- * DD FLOPPY CONTROLLER ON BOARD
- * TWO RS232 SERIAL PORTS
- * CENTRONICS PRINTER PORT
- * SCSI HARD DISK INTERFACE.
- * ASSEMBLED, TESTED, READY TO USE

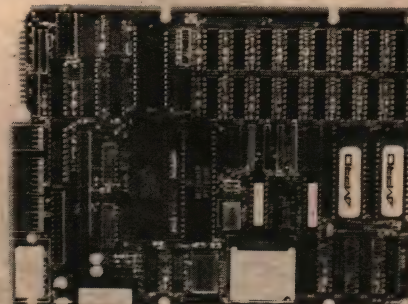
BY AMPRO!

NOTE: BOTH OF THESE NEW LITTLE BOARDS™ WORK FINE WITH OUR POPULAR ZRT-80 TERMINAL BOARD KIT FOR \$89.95.

DISK DRIVE SPECIAL!
1/2 HT. DS-DD 40 TRACKS
PERFECT FOR LITTLE BOARD™
\$79.95 ea. 2 FOR \$139.00

INTEL 80186 FOR PC-DOS

LITTLE BOARD™/186
16 BIT



FEATURES:

- * 8 MHZ INTEL 80186 FOR TRUE 16 BIT
- * 128K OR 512K RAM
- * WILL BOOT STANDARD PC DOS
- * 3 TIMES COMPUTING POWER OF A P.C.
- * RUNS THOUSANDS OF "MS-DOS" GENERIC PROGRAMS
- * COMES WITH MS-DOS COMPATIBLE ROM-BIOS AND UTILITIES
- * PC-SUPPORT SOFTWARE AND SOURCE AVAILABLE FOR \$89.00
- * MULTI-LAYER PC BOARD FOR LOW NOISE

\$419.00 (A & T, 128K) **\$499.00** (A & T, 512K)

Digital Research Computers

(OF TEXAS)

P.O. BOX 381450 • DUNCANVILLE, TX 75138 • (214) 225-2309

TERMS: Shipments will be made approximately two weeks after we receive your order. VISA, MC, cash accepted. We will accept COD's with a \$75 deposit. Balance UPS COD. Add \$4.00 shipping.
USA AND CANADA ONLY

Surplus Xerox

Continued from page 170

on the Xerox. The other format program written earlier was to allow a non-Xerox computer to do a Xerox format. I would also need a program to format not only 5-1/4 SSSD 40 track, but DSSD 40 track, SSSD 80 track, and DSSD 80 track, also. This would allow the Xerox to operate with any 5-1/4 drive. When the formatting program was done, the new BIOS program was written, using the original Xerox BIOS as a guide, to accommodate all of the above formats automatically, single-sided and double-sided Boot programs were written, and a special version of Sysgen (CP/M Load Program) was written to allow the system to be loaded onto any of these formats. After much debug (a borrowed Z-80 in-circuit emulator came in very handy), all of the programs were running. My reward was, when accessing an 80 track double sided drive, the CP/M utility stat reports that I have 349k bytes available on an empty disk, rather than the woeful 81k bytes of a normal Xerox. We also duplicated all of the previous work so that the BIOS and utility programs would function with normal CP/M.

Conclusions

A tremendous amount of work went into this project to produce the final system. The hardware was easy, and the software required most of the time. I would not recommend trying to do what was done here unless one has access to some very sophisticated tools and a very in-depth knowledge of the CP/M operating system, not to mention a lot of luck in finding sources for the various component parts of the software.

What I did wind up with was a computer with a very adequate amount of disk storage, a nice video display, and a very reasonable price. Seventy-nine buck computers should not be ignored. We have decided to offer our system software for sale to anyone who wants to try a Xerox project, so that the task will be within reason for a person without the resources we had available. With this help, a good computer at a super price can be had. We have also developed a relationship with the company which offers the MRS disk operating system and can offer this system with the BIOS we developed in all the possible 5-1/4 disk configurations (40 or 80 track single or double sided). The system is totally compatible with the original Xerox format as long as one of the drives in the system is 40 track. The system is capable of running 40 and 80 track drives simultane-

ously, so that any necessary copying can be done.

Sources

Complete Operating System and Software Source and Documentation Complete Ready to Run 5-1/4 Systems with Replacement Monitor ROM - \$59.95

Ready to install BIOS and special utilities for existing CPM System with Complete

Documentation and Replacement Monitor ROM - \$34.95

Composite Video Adapter on PC board, assembled and tested - \$17.95

Gene Toner
P.O. Box 69
Fountainville, PA 18923
215-249-0240, 9am to 5pm est

Operating System - Fully CPM compatible with Source

Code - \$39.95. Requires mating to a Xerox BIOS

OCCO, Inc.
28 Claflin St.
Milford, MA 01757
617-478-3102, 24 hours -
7:30pm/10:30pm est Wed. only for technical

Original Xerox Documentation Schematics - 18" x 24" set of six - \$18.00

Documentation Package - \$15.00

Original Xerox BIOS, ROM monitor source, and SSSD formatter on 8" SSSD - \$35.00

Composite Video Adapter Kit - \$25.00
Ferguson Engineering
P.O. Box 300085
Arlington, TX 76010
817-640-0207

SPECIAL LAP COMPUTER FULL FACTORY WARRANTY

BUILT IN
300 BAND
MODEM
Terminal Emulator
to Communicate
with Personal
or Mainframe
Computers

IT'S A HANDS
FREE PHONE
Comes with
Rechargeable
Batteries and Charger.

workSlate
BY CONVERGENT
TECHNOLOGIES

THE MOST PORTABLE TERMINAL

OUR BEST
PRICE EVER \$295.00
ORIGINALLY
\$1195.00

INCLUDES FREE SOFTWARE WORTH \$88.00
Information and Consultant Services Software.

Receive information such as current stock quotes and airline flight schedules. Just by plugging WorkSlate into a telephone jack, you can get electronic access to another WorkSlate, other computers or information services such as Dow Jones News/Retrieval®. WorkSlate is a totally independent machine. It's powerful, portable and easy to use. WorkSlate is for business people who handle data daily and rely on it to make decisions. Calculate. Communicate. Manage time. Manipulate information. • Dimensions: 8 1/2" x 11 1/4" x 1", 3 lbs. Display: LCD, 46 characters per line, 16 lines. Keyboard: 60 keys, Typewriter-style keyboard and calculator pad. Power: NiCad-rechargeable battery, AC adaptor/recharger or 4AA alkaline batteries. Software: Built-in handles worksheets for Financial analysis, phone, calendar and communications management. Internal Memory up to 12 8 1/2" x 11" pages Microcassettes store up to 10 worksheets or 45 minutes of audio information.

OTHER SOFTWARE PACKAGES • 10% DISCOUNT ON ANY 3

Cash Management	\$19.95	Insurance Analyzer	\$19.95
Financial Statements (2)	\$29.95	Real Estate	(2) \$29.95
Inventory Analysis	\$19.95	Electronic Mail	\$39.95
Marketing Management	\$19.95	Information Services	\$49.95
Sales Reporter	\$19.95	Loan Analysis	\$19.95
Travel	\$19.95	Portfolio Analysis	(2) \$29.95

• Comes with "Teach Me" Tapes and TOLL FREE ASSISTANCE NUMBER

CEC

1745 Adrian Road, No. 1
Burlingame, CA 94010
415/342-4058
800/228-3411

WHEN THE U.S. ARMY NEEDED PROTECTION —THEY CALLED US!

So did the Royal Canadian Navy, AT&T, Lockheed, NASA, Motorola, Clemson University, & the entire Colorado State school system.

Zapstar™ S-6 is an advanced surge suppressor/filter which utilizes the fastest protection technology available on the market today.

The S-6 provides maximum protection for your electronic equipment & data on all three modes where power surges & spikes can occur. (An important feature not available on most other protection devices!)

That's why the people with the most to protect —call us for protection.

Lifetime Warranty.

Exceeds IEEE standards. Now only \$59.95—So why settle for less?

To order the
ZAPSTAR S-6
Call TOLL-FREE
1-800-624-8189
In Florida
(305) 722-7770

ZAPSTAR

Severts & Zorman
Engineering, Inc.

7144 W. McNab Road
Ft. Lauderdale, Florida 33319

Jackintosh Logo Continued from page 64

of the information you need to use system functions. Where practical they prevent you from making accidental mistakes. Where mistakes may result from a wrong decision they often give you a chance to change your mind. Maybe you don't need it, but it frequently saves me from trouble.

So let's leap into the fray. Power up the display, disk, and computer. Quickly the disk unit whirs and Atari symbols cover the screen, in black, with a background of changing colors, and shades within each color. Messages follow. The first message block directs that the systems disk be installed. Then a second block tells you to position the mouse pointer and to click the left button.

Being obedient by nature and habit -- after years of Mom's training -- I insert the 3½" disk and move the mouse to position our pointer. By the way, the mouse doesn't need a lot of room. If your space is cramped, merely pick it up, reposition it, and continue moving the pointer. Pressing on the left button causes the Atari pattern to go through its shenanigans, and we soon see

a green screen with 2 drawers and a trash can displayed. Above this drear scene are 4 entries: Disk, File, View, and options.

We are now ready to go for LOGO. Following the instructions in the furnished manual results in the language being loaded into the system. Be thankful! Many companies produce manuals which are not that valid!

With reference to the Atari LOGO manuals I think it is well done. My version appears to be a preliminary product, so the fancy touches such as slick covers and the like are missing. But the contents are sound. They are organized more as reference than as a tutorial, but provide the essential information the users need. Admittedly, it is necessary to dig at times.

Paraphrasing the LOGO manual, we enter the language as follows:

Using the mouse position the pointer over the drawer icon labeled "B."

Press the left button on the Mouse.

The icon turns black, and you should now press twice, rapidly, the left Mouse button.

A pop-up block now tells you to insert disk B into drive A. Insert the LOGO disk,

move the Mouse pointer to the OK entry on the pop-up, and press the left button.

At this point the icons for the LOGO entries are displayed. Ignore those which have a corner dog-eared and position the Mouse pointer over the icon identified as "LOGO.PRG". Again press the left button. When the icon turns black rapidly press twice the left button.

By the way, it seems easier to get a rapid double press of the button if you place your index finger at the edge of the button farthest from you. I really get down to the nitty-gritty when I write about this stuff!

Our screen now has a number of interesting entries. Across the top are such goodies as Desk, File, Run, Edit and Settings. Below this the screen is divided into a left- and a right-hand block. The right-hand one has the label, "GRAPHICS DISPLAY" across the top, and our turtle symbol in the center. The left-hand one has "LOGO DIALOGUE," and below "DR LOGO FOR GEM!" A "?" and cursor mark are below and to the left.

Continued on page 174

COMPUTER CASE

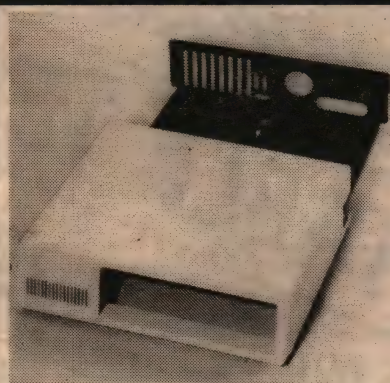


FLIP-TOP TYPE

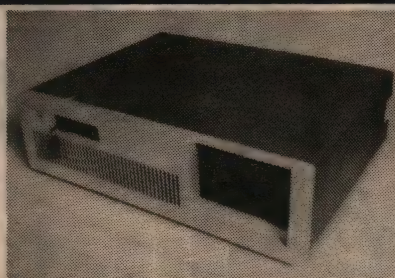
- Both types extended 2.5 cm length provide more space between disk drivers and power supply, much more convenient to install and service, can be used for mega board.
- Rugged heavy gauge steel construction coated with anti-scratch paint.
- Pre-stamped extra holes on base sheet can fit various of system boards.
- A special designed plastic feet together with sliding guider makes very easy to mounting or remove the system board.

Only \$65.00

- DEALER/OEM/DISTRIBUTOR/QUANTITY DISCOUNTS AVAILABLE.
- 3 MONTH WARRANTY ON ALL ITEMS.
- ALL ITEMS IBM COMPATIBLE

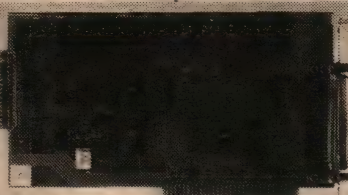


SLIDE-IN TYPE



PC/AT Compatible Case

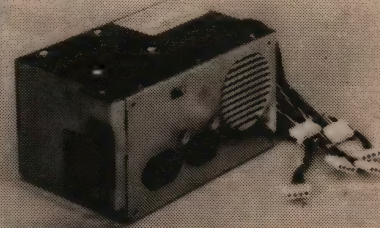
\$ PLEASE CALL



Floppy Disk Drive Card

- Standard Double Sided/Double Density, 5¼" disk drive adapter
- Capable Drive 4 Disk Drive — two internal and two external.

\$69.00



**135W
POWER
SUPPLY
\$99.00**

- DESIGNED WITH HIGH EFFICIENCY AND HIGH STABILITY CIRCUIT PROVIDE OVER - VOLTAGE AND OVER CURRENT PROTECTION
- COMMON MODE NOISE FILTERED BY LINE FILTER, HIGH FREQUENCY NOISE FILTERED BY L.C. FILTER.

PARALLEL PRINTER CARD \$ 39.00

**384 K MULTIFUNCTION CARD
W/CABLE (OKB) \$149.00**

DISK I/O CARD \$165.00

KEYBOARD \$ 79.00

512 KB RAM CARD (OKB) \$ 79.00

**SPEAKER WITH HOLDER,
PIN CONNECTOR, WIRE \$ 4.00**

DISK DOUBLER \$ 6.50

64 K RAM \$8.00/9 PCS

SOLETEK INC.

—MANUFACTURER & IMPORTER—

1122-C2 W. WASHINGTON BLVD., MONTEBELLO, CA 90640

Please Call For Our Latest Prices

(213) 721-6024

TERMS:

1. ALL ITEMS SHIPPED BY UPS
2. C.O.D. ADD 2.00 ADDITIONAL (CASHIER'S CHECK ONLY)
3. CA RESIDENTS ADD 6.5% SALES TAX

Good News Continued from page 63

to find the nearest board that has them.

For somewhere around \$60 and a couple of hours work, you can have more memory in your machine than I ever dreamed would be needed. The RAM upgrade requires sixteen 256K DRAMS, and there are many companies that advertise here in the *Computer Shopper* at good single quantity prices of less than four dollars per chip. We have already ordered enough to modify our STs. As soon as our RAM chips get here we'll upgrade our STs. We will let everyone know how well it works. We will also pass along news on any and all problems we may run into. This mod is not for the faint of heart, the 256K DRAMS are very sensitive and easily damaged. It's a good idea to order extra chips just in case...

We are not going to do the battery backup yet because the current version of TOS loads a default time and date whenever the system is booted, writing over any date and time that may be there. It doesn't make a lot of sense to add battery backup if the OS is just going to trash the correct time and date on every boot. This is supposed to be fixed before TOS is committed to ROM. At that time the battery backup is much more attractive. And we will add it to our machines, with time and date stamping of files, it will be much easier to keep track of the latest rev of all our files. We found some instructions for adapting an IBM 5 $\frac{1}{4}$ " drive to work with the ST. Since the Atari uses the IBM disk format this should be a good way to get a lot of source code into the machine. As always, this doesn't mean that the ST can run IBM programs, but you can transfer data files. Since 5 $\frac{1}{4}$ " disks cost less than half of the 3 $\frac{1}{2}$ " disks, you may be able to save a considerable amount of money if you have a lot of files. If you

use as many disks as we do this is an important consideration. We do expect the price of the 3 $\frac{1}{2}$ "s to keep dropping and there are modem programs available for both the Atari ST and the IBM-PC that allow you to exchange files. In the near future there may be little reason to add a 5 $\frac{1}{4}$ drive unless you are the president of a computer club, or have some other reason to move lots of disks between the two formats. We are using the double sided drives for most of our work, and will be picking up a hard drive as soon as we can, so we won't be doing this mod. If

anybody does it, we would be interested in hearing about it.

Of course, the best hardware and all the drives and memory in the world won't do you any good unless you have some software to run on them. Good news here as well, software is showing up in the retail stores. While there are not the hundreds of programs the mature machines have, the STs have only been out for a month now. Think back to when the Apple Macintosh was released, how long did Mac users have to wait before they had anything besides MacWrite and MacPaint. Not to mention

the fact that they couldn't get a second drive for love or money. And the early IBM-PC owners had an even worse time trying to get software. So we can't complain too much about having to wait a WHOLE MONTH for third party software and additional drives to hit the stores.

One of the first companies to port their programs to new machines is Infocom, luckily for us the STs are no exception to this rule. There are three of the Infocom adventure games available for the ST: Wishbringer, ZORK I, and Hitch

Hiker's Guide to the Galaxy. These are all excellent adventures, and it won't be long until the entire line of Infocom games are ready for the ST. Though we must admit that Bill hasn't finished Hitch Hiker's yet, but he has only been working on it for two months off and on. Bill's trouble with Hitch Hiker aside, (Bill refuses to make maps when playing adventure games) we have yet to see a bad adventure game from Infocom. Almost impossible yes,

Continued on page 176

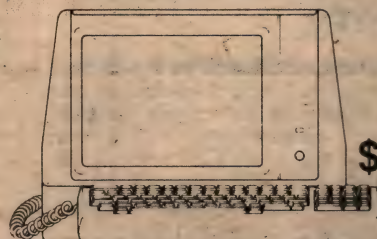
COMPUTER PARTS MART

Osborne

As available only! Very limited quantity.

Important: Always call to check availa- bility before ordering.	To fix yourself, or for parts. Complete, but known not working.	Guaranteed for 30 days. May be new or refurb., depen- ding on avail. Exch/ Repair	Outright
Main Board OS-1	\$79	\$79	\$139
Main Board Exec.	\$159	\$139	\$299
Double Density Kit **	—	—	\$79
** Includes board, cable, documentation & disk			
Battery packs 40 watt	(Cable not incl.)	\$49	
5" CRT (Grn/White)	\$9.95	\$19	\$29
7" CRT (Amber)	\$19	\$49	\$99
15" CRT, no case (Grn)	—	—	\$85
Drive Analog Card	\$9.95	\$29	\$59
Drive Mechanism	—	\$25	\$59
Power Supply	\$4.95	\$24	\$29
Keyboard (No enclos.)	\$19	—	\$99

LEAR-SIEGLER ADM-20 TERMINAL (Morrow MDT-20)



\$249

- P-31 Phosphor
- RS-232 Buffered Communications Port
- RS-232 Serial Asynchronous Interfacing
- 12" Display
- 80 Column x 20 Row format
- Detachable keyboard
- Power Supply
- For use with Morrow Designs, Computers and most RS-232 systems

IBM COSMETIC
OEM KIT

MONTE CARLO

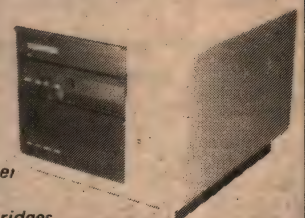
(Grey) Shugart SA 455
or Matsushita 1/2 ht
Floppy Drives . . . \$5.95

256K/1 MBY Parity
Use either 64K or
256K chips.
Serial & parallel
game ports.
Calendar time clock.
Bare board &
manual. . . . \$39.00

Solo 50MBy SASI System

Professional Storage System

- ** Drives by Discron
- ** 40MBy fixed
- ** 10MBy cartridge
- ** Power Supply
- ** Enclosure
- ** SASI Controller by DTC
- ** Incl. two Cartridges
- ** Cartridges available from Dysan and many others.



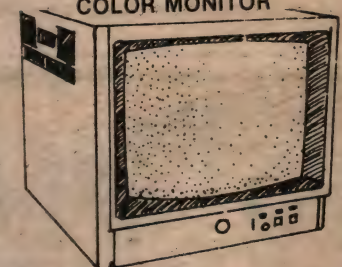
\$995

Known reliable design. Built-in backup.

MITSUBISHI C6912LP HI-RES ANALOG RGB

COLOR MONITOR

- 19" high line-rate color display monitor in enclosure with:
- * Long persistence phosphor
- * Analog input, 1V p-p
- * Dot pitch 0.31mm, 1280 x 1024 pixels
- * Horiz. scanning freq. 28-34KHz
- * Vertical scanning 25-70Hz
- * Video Bandwidth 50MHz
- * Includes power supply
- * Power consumption 280VA
- * Perfectly amazing with ARTIST-I



Factory cost \$3,500
Manufacturer's excess stock
\$1495.00

ALPS X-Y Printer Plotter



- * "X" & "Y" stepper motors are 4-phase center-tapped design and incorporate anti-lash nylon gear train
- * Pen lift solenoid magnetically latches "up" or "down"
- * 4 pen cassette for black, red, green and blue pens on paper
- * 4 1/2" paper fed by "mini-pin-feed" platen with hardened steel talons for perfect paper registration
- * Pen change actuated by executing "left mechanical limit" 3 times in immediate succession
- * One set of pens included (Paper & pens also avail. from Radio Shack)
- * Controller electronics not included
- * Makes absolutely fantastic low-cost, hi-performance chart recorders.
- * Miniature "HP-7580" design
- X-Y Printer Plotter Mechanism . . . \$19.95
- Cases (Convergent Technologies) . . . \$3.50

175 WATT SWITCHER

5V/15A, +12V/4A, 24V/4A, 175 watt max.
KEC SCB174-01, Tokyo cousin of the Boschert 01153-011. Extremely small, lightweight (Footprint 2 1/4" x 10" x 5 1/2", 2 lbs.) power source with LOTS of punch! Perfect for almost any disk drive system. Use with IBM or clones: merely requires -5V regulator (LM7905). Factory new in boxes. Run-on 115/230. . . . \$79

FREE CATALOG

Send 44 cent SASE for copy of the latest C.P.M. mini-catalog!

ALIGNMENT Disks

8" DS/SS	\$29
5 1/4" SS	\$19
5 1/4" DS IBM PC	\$24
3 1/2" SS Macintosh	\$29

All disks guaranteed - Cats Eye analogue, DYMAN & DYMEK. Used, guaranteed disks available also for infrequent users. Instruction sheet included.

415-493-5930

3200 PARK BLVD. * PALO ALTO
CALIFORNIA 94306

Shipping charged on all orders. Please add \$2 plus applicable UPS rates for shipping and insurance.

DEALER INQUIRIES INVITED

A Great Stocking Stuffer!

**COMPUTER
SHOPPER**

For yourself
or a friend
at

Special
Holiday Rates.
See Center



Jackintosh Logo Continued from page 172

Entries at this point are essentially in the immediate mode. For example, if you enter FD 50 and press return the turtle moves forward 50 units, leaving a trace behind it. Try it, you'll like it!

Of course, you can also develop procedures here. Merely start the sequence with TO DO and conclude it with END. Generally it is more con-

venient to go to the EDIT mode when developing procedures. You can enter the EDIT mode by typing in the direction of EDIT or by using the Mouse and the Edit pull-down window. I try typing in the entry first. LOGO EDIT quickly appears in the lower left of the screen.

Two problems come to mind. First, how do I get out of EDIT mode? Well, a simple way is to position the Mouse pointer on the Edit entry at the top of the screen. A window is

displayed with the possible options listed. Some of these are in black, while others are in hatched entry. Only the black entries are accessible. The first of these is Save Edit. Placing the Mouse pointer here and clicking the left button saves the procedure, and returns us to the dialogue screen. A second method is to merely hold down the CONTROL key and enter C.

You can clear any drop-down window by placing the Mouse pointer in a blank area and clicking the left button. It automatically clears when you make a valid choice among those offered. If while in EDIT mode, you move the Mouse pointer to any adjacent drop-down window it will show only grey entries. You must get out of Edit before using them!

The second problem which came to mind is the cramped space in the tiny Edit block. To correct this place the Mouse pointer at the upper right corner of the LOGO EDITOR block, click the left button, and stand back! The LOGO EDITOR now fills the entire screen. The same approach can be used to expand other screens.

Almost all the Edit window entries have alternatives, involving the use of the CONTROL key and other keys. This is not true, however, of all other windows available. Ac-

tually, most functions can be implemented using the LOGO statements. Often, however it is much more convenient to use the windows. So one must learn to use them when it is appropriate. Fortunately, they are almost self-explanatory.

The CONTROL PANEL, selectable by the DESK drop-down window, has interesting capabilities. Time and Calendar Date can be entered. Responsiveness of the repeat function (all keys will repeat) can be set. Similarly, responsiveness of the Mouse can be adjusted. The sound level associated with the keys can be modified. And the shades of the colors can be changed by varying the red/green/blue mix. It is interesting to go to extremes with the CONTROL PANEL settings and note the results. Fortunately, you can always return to the default value -- so long as you don't save the new readings.

Generally positioning the Mouse pointer at the CANCEL block in the window and clicking the left button returns you to the default settings and deletes the window from the screen. This doesn't work that way for the CONTROL PANEL window, so to clear I move the Mouse pointer to the upper left hand corner of the CONTROL PANEL window display and click the Mouse pointer.

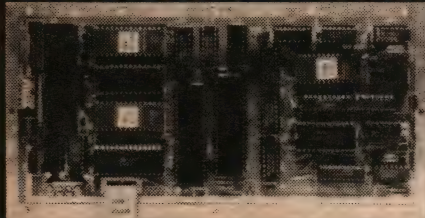
Our Graphics Display block is a drab whitish-grey with the drawn lines black. To introduce brilliance to the turtle's peregrinations we need color. The SETTINGS window allows us to select GRAPHICS and reset the background, line, and fill characteristics. To do this we need to know the numeric value of the desired entry. This is unfortunate, since the appropriate approach would have been to display colors, patterns, width, etc., and to allow the user to choose. Nevertheless one can experiment and view the results before deciding on a final choice.

Continuing our Walk Through while in the EDIT mode, we now develop a procedure, typing the usual TO XX as the first instruction line. The subsequent entries follow essentially the same pattern as in other LOGOs. When the routine is completed either a CONTROL C, or a SAVE from the EDIT window captures the program and returns us to the Immediate mode. Entering the program title causes the routine to run.

If our program is generating a graphic display in the right-hand block we can fill the screen with this activity by placing the Mouse pointer at

Continued on page 178

ANSI CRT TERMINAL BOARD



INTRODUCING THE CRT6809E

A single board that requires a video monitor, a parallel ASCII keyboard, a speaker and a power supply to produce an ANSI type terminal based on the popular VT100/VT101.

FEATURES:

- OVER 60 COMMANDS! (VT101 ANSI ROM)
- Uses the powerful MC6809E uP, the MC6845 CRT controller, 6522 VIA and the 6551 ACIA.
- 25 lines by 80 characters or 24 lines with a status line.
- Upper and lower case with descenders.
- VT101 ANSI ROM FEATURES:
CRT SAVER, KEY CLICK, MARGIN BELL, DRAW BOX, PSEUDO LEDS, TABS, BELL, LINE GRAPHICS/US/UK CHARACTER SETS, USER PROGRAMMABLE FUNCTION KEYS, ADJUSTABLE SCROLLING REGIONS, KEYBOARD CUSTOMIZER MODE and more!
- Supports XON/XOFF and RTS protocols.
- RS-232 with baud rates to 38400!
- Composite video or separate sync.
- Small size, 4.5 by 9 inches.
- Optional DEBUG ROM with 9 commands and breakpoints.
- Use as a stand alone computer with up to 24K of internal memory.
- +5v @ 1 Amp, ±12v @ 100 ma.

Blank PCB (No parts) and Manual.....	33.95
Manual/Schematics Only (Postage paid)3.50	
2732 Char. Gen. ROM.....	7.95
2764 VT-101/VT-52 (60 Cmds.).....	15.95
2764 LSI-ADM-3A (13 Cmds.).....	8.95
2764 DEBUG MONITOR ROM.....	9.50
SET OF 2 CRYSTALS.....	7.50
IC SOCKET SET.....	5.00
FLEX (TM TSC) or OS-9 (TM MICROWARE)	
5" or 8" Source Diskette. Specify Format	
VT101/VT52 (8000 Lines).....	25.00
LSI-ADM-3A.....	15.00
Debug ROM source.....	15.00

TERMS: CDD orders, add 2.00 CDD fee. UPS surface 3.00. UPS Blue 5.00. UPS Red 14.50. P. Post 4.00. AZ Residents add 6% sales tax. Allow 2-6 weeks for delivery. Send certified check or M.O. for fastest delivery.

HSL DESIGNS
DEPT. CS
1933 EAST YALE DR.
TEMPE, ARIZONA 85283

The Universals Are Here!!

Re-Ink Any Fabric Ribbon Automatically for Less than 5 Cents.

Now the Universal Cartridge MacInker (UC) will re-ink just about all fabric cartridges. Operation is extremely simple and automatic with new twin-drive electric motor that supports CW and CCW rotating cartridges. With most cartridges you do not even have to touch the ribbon when mounting the cartridge on MacInker (UC). We have an automatic timer available - you dial the time corresponding to the ribbon length and come back to a fresh ribbon.

The Universal Spool MacInker (US) supports over 350 brands of spools. We also have Dedicated MacInkers for any special cartridge or ribbon: Harmonica Type, Zip Pack etc. Following customer demand we have introduced a Universal Spool MacInker (US) with adaptor for all Epson cartridges.

Our new carbonless, lubricated, dot matrix ink provides better than new print-out quality. In our tests one re-inked Epson 80* Ribbon has outlived

*EPSON is a trademark of EPSON CORP.

the estimated life of the print-head! We receive consistent & similar feedback from our customers all over the world.

Use MacInker to eliminate ribbon costs and to create your own colored ribbons. We have now 6 brilliant colors, besides black: red, brown, green, blue, yellow, purple. We have uninked or colored cartridges for most popular printers and uninked or colored ribbons ("reloads") for all cartridges. MacInker (UC) is \$60.00 Cartridge drivers are \$8.50/each. We still have our first generation, dedicated, automatic MacInkers for most popular printers. Prices start at \$54.95 with most units below \$60.00.

We have over 40,000 MacInkers in the field. A testimonial from one of our first customers 3 years ago, perhaps, sums it all up: "I used Mac Inker and put the cartridge back in the printer. When I saw it print I thought it was magic".

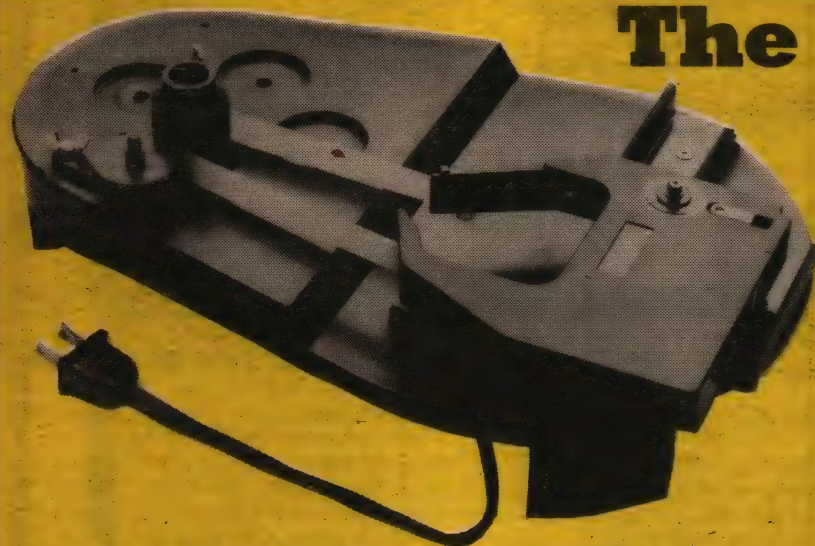
Computer Friends

6415 SW Canyon Court
Suite #10
Portland, Oregon 97225

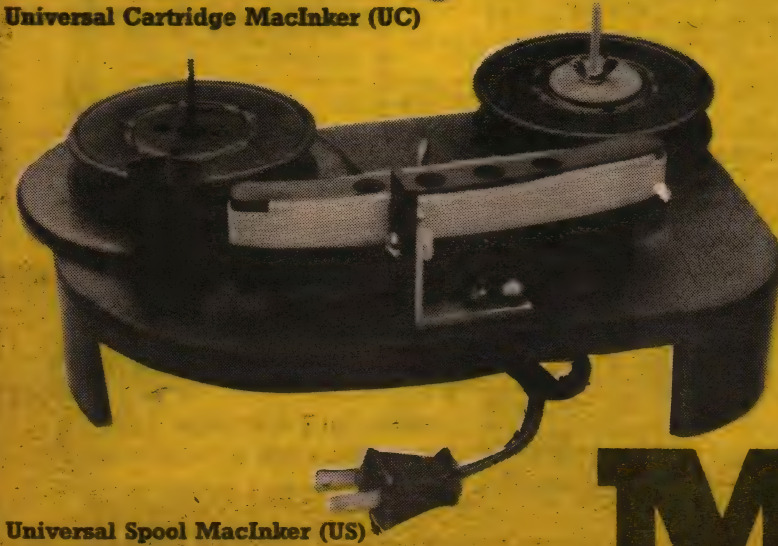
OrderToll Free 1-800-547-3303
or ask for Free, Detailed Brochure on
MacInker & the Re-Inking Process.
In Oregon (503) 297-2321 (24 hrs. Line)

MacInker™

Dealers inquiries welcome.



Universal Cartridge MacInker (UC)



Universal Spool MacInker (US)



For Orders Only

TOLL FREE 1-800-257-6094

Inquiries and CA

714-855-0924

PRINTERS

Brother	
HR-15XL (18cps)	\$349
HR-25 (23cps)	\$499
Keyboard for 15XL	\$143
Panasonic	
KX-1091 (120 cps, 10")	\$239
KX-1092 (180 cps, 10")	\$349
Okidata	
ML182P or IBM	\$235
ML182S (120 cps)	\$265
ML192P or IBM	\$375
ML192S (160 cps)	\$429
ML193P or IBM	\$509
APP92 (160 cps)	\$439
Tractor for 82 & 92	\$45
Star Micronics	
SG-10 (120 cps)	\$223
SG-15 (120 cps, 15")	\$364
Power Type (18 cps)	\$336
C. Itoh	
8510AP+ (120 cps)	\$319
Epson	
Call for the latest \$\$\$	

PC COMPATIBLE DISK DRIVES

Teac (IBM)	
FD55B, 360K	\$94
FD55F, Quad density	\$119
Tandon (IBM)	
TM100-2, 360K	\$119
Seagate Hard Drives (IBM)	
10MB HD w/controller	\$449
20MB HD w/controller	\$589

APPLE COMPATIBLE DISK DRIVES

Mitac	
AD-3 Half Height	\$119
AD-3 Half Ht for IIC	\$119
Shugart Mechanism	
Full Height	\$109
Teac Mechanism	
Half Height	\$109

COMPUTER SYSTEMS

IBM	
PC 256K, 2 Drives	\$1650
PC 256K, 2 Drives, 10MB HD	\$2199
Compaq	
Portable, 2 Drives, 256K	\$1949
Kaypro	
Kaypro 2000	\$1699
Kaypro 2X Business Pac	\$1569
Kaypro 16, w/256k 2 drives	\$1849
IBM XT Compatible	
XT w/ 2 360k drives, 256K	\$699
XT w/Mon, Graph Cd, Par Pt	\$899

IBM COMPATIBLE HARDWARE

Ast Research	
Six Pack Plus w/64K	\$229
Tall Tree Systems	
JRam-2 000K	\$177
Quadram	
Quadboard Ex 064K	\$229
Persyst	
Monochrome Card	\$173
Paradise Systems, Inc.	
5-Pack Multifunction	\$157
Modular Graphics card	\$269
Everex	
Graphice Edge	\$319
Hercules	
Color Graphics Card	\$156

MODEMS

Anchor Automation	
Anchor Express	\$239
Volkmodem 12	\$185
EasyData (w/PC Talk III)	
EasyData Modem 12B	\$185
Hayes	
Smartmodem 1200	\$379
Smartmodem 1200B w/sft	\$349
Smartmodem 2400	\$589
Micromodem IIc w/sft	\$139
Prometheus	
ProModem 1200	\$309
ProModem 1200B w/sft	\$249
ProModem Alpha Display	\$75
ProModem Options Proc	\$75

APPLE COMPATIBLE HARDWARE

Applied Engineering (3 yr war)	
Ramworks 64K	\$139
Z-80 Plus	\$125
Z-80c Z-80 for IIC	\$135
Viewmaster, 80 col card	\$109
Music Synthesizer	\$129
Advanced Logic Systems	
Z-Engine	\$129
Kensington	
System Saver	\$62
SMT (3 yr warranty)	
80 col card w/64k for IIC	\$59

MONITORS

Amdek	
300G 12" Hi/Res Green	\$126
300A 12" Hi/Res Amber	\$133
310A 12" Hi/Res Amber (IBM)	\$153
300 Hi/Res Color Composite	\$234
500 Hi/Res RGB/Composite	\$314
Sony	
1311 13" RGB	
w/Tuner & Remote	\$469
Princeton Graphics	
Max-12 Monochrome Amber	\$169
HX-12 RGB (IBM)	\$439
SR-12 RGB (IBM)	\$589
Scan Doubler	
(needed for SR-12)	\$169
Taxan	
115 12" Green	\$108
116 12" Amber	\$118
121 12" Green, IBM	\$119
122 12" Amber, IBM	\$129
420 12" RGB Hi/Res	\$375
425 12" RGB Super Hi/Res	\$399
Samsung (IBM TTL)	
12" Hi/Res Amber	\$89
12" Hi/Res Green	\$89

SPECIALS!!

**IBM XT COMPATIBLE
SYSTEM**
**256K, 2 360K 1/2 HT. DRIVES,
KEYBOARD, MONOCHROME CARD,
PARALLEL PORT, HI/RES 12"
AMBER OR GREEN TTL MONITOR.**

\$899

PRINTER ACCESSORIES

Orange Micro (Apple)	
Grappler+	\$89
Buffered Grappler+ w/16K	\$142
Serial Grappler+	\$89
Buffered Serial Grappler+	\$159
Grappler C (ser to par)	\$89
Hotlink (ser to par)	\$59
Fourth Dimension (Apple)	
Parallel Card and Cable	\$43
Microtek (Apple)	
Dumpling GX	\$69
Dumpling 16	\$139
Fourth Dimension (Apple)	
Parallel Card and Cable	\$43

GENERIC FOR APPLE

Z80 Card	\$48
80 Col Card w/soft switch	\$69
SS/SD Diskettes 10 PAK	\$9
16K Ram Card (Lang Card)	\$39
Disk Drive Controller Card	\$45
RS-232 Super Serial Card	\$90
RS-232 Serial Card	\$55
Surge Protector 6 outlet	\$19
Cooling Fan w/surge	\$27
Joystick for Apple II	\$17
Joystick for IIC, IIC, IBM	\$25
Eprom Writer	\$55
Macintosh Printer Cable	\$19
IIC Printer Cable	\$19
Serial Cable (RS-232)	\$16

GENERIC FOR IBM

Monochrome Graphic	
w/par pt	\$139
Monochrome Card w/Par pt	\$69
Color Graphics Card	\$89
Parallel Port	\$39
Serial Port	\$39
Multifunction Card (OK)	
Serial, Parallel, Game Port,	
Clock Calendar	
Disk Controller	\$149
Memory Card w/348K	\$129
135 Watt Power Supply	\$89
Disk Drive Controller Card	\$55
Parallel Printer Card	\$12

LifeStyle Computer Products

WE ACCEPT VISA, MC, C.O.D.,
WIRE TRANSFER, CHECK,
MONEY ORDER

MAIL ORDER
25381-G Alicia Parkway
Suite 350
Laguna Hills, CA 92653

(714) 855-0924

Call for Information and Shipping Charges
California residents add 6% sales tax. Prices subject to change.

MON-FRI 7 A.M. TO 5 P.M.
SATURDAY 8 A.M. TO 3 P.M.

Good News
Continued from page 173

bad no. If you are new to adventure games start with Wishbringer, and work your way up to the harder ones. If you're not new to them or are very sure of your problem solving ability, Bill highly recommends Hitch Hiker's Guide to the Galaxy (even if he can't figure out how to get by the

screening door). One hint on Hitch Hiker's, it helps to have read the book before playing the game. It's not mandatory but it does help.

If word processing, not game playing, is your major interest, you may want to look at Express from Mirage Concepts Inc. It retails for approximately fifty dollars. Mirage calls Express a "letter processor," not a word processor. Missing from

Express are some of the advanced WP features such as search, search and replace, multiple windows, etc. Express is designed mainly for doing small jobs of one to ten pages, so they only incorporated the most commonly used features. This design allows a novice user to start cranking out good looking letters and documents in less than a half hour.

Express has two basic modes, Typewriter, and Word Processor. In the typewriter mode Express emulates a memory typewriter which prints a line every time the carriage return is hit. Corrections can be made on a line only before carriage return is hit. This lets you get text to the printer as quickly as possible. This is an excellent feature for addressing envelopes, filling out forms or jotting quick notes.

The Word Processor mode is the heart of Express. While not full featured it does have enough features to be very useful. It lets you cut and paste, bold and underline, merge documents, delete by characters, line, paragraph, or the entire document, format, and print. The WP of Express resides completely in memory, and the file you're working on must be in memory as well. This means that Express is extremely fat on most text modifications. But because you must have TOS and Express in memory, you only have enough free RAM for a 30-35 page file. When you fill up the

available space Express tells you that it's out of room and lets you write the file to disk. This limitation will vanish when TOS becomes available on ROM. Or if you decide to upgrade your 520 to one megabyte of RAM. Won't your gloating "Fat Mac" friends be green with MacEnvy.

Two other nice features included in the Express package are a mailing list and a terminal mode. The mailing list allows the user to create a disk file of names and addresses. To be used in creating customized mass mailings, Express provides ten data fields:

0. Name
1. Title/Institution
2. Address
3. City
4. State
5. Zip
6. Code/Country
7. Phone
8. Salutation
9. Alternate Phone

These are all entered on a mailing list form that is displayed on the screen. A very powerful feature of Express is that it lets you sort your data file as it is printing the mass mailing. For example, you can print letters to every James on your data file. You can also print letters to everyone whose zip code starts with 32. This is one of the best features of the program.

Express's terminal mode allows you to transfer and receive files with your ST. The file transfer is limited to ASCII files only, using the

XON/XOFF protocol. There are some problems with the terminal program. It doesn't seem to like you to use lines in excess of eighty characters. When you do, the program doesn't wrap properly. Instead, it blows up and throws you back to the desk top. The other problem is more serious: Express seems to hate 1200 baud. This may be because of something we are doing wrong. If any one knows a work around please let us know. In all fairness, the ST is not an easy machine to write terminal packages for.

We can see where Express is a very useful tool for someone who isn't going to do a large amount of word processing. Mirage bills this package as a letter processor and that's what it is. Bill tried to write his sections of this article with it and gave up after two pages and went back to the editor he was accustomed to. We see two problems with Express: the command format, and the way the text is displayed on the screen.

The main problem we see with the display is that Express shows a less than symbol (<) on the screen to show where a carriage return has been inserted. They also didn't take advantage of Atari's bit mapped screen to display boldface or underline. Instead they used the standard method of displaying a special character

Continued on page 178

DEALERS - RETAILERS - VARS

Quantity Discounts

FREE Catalog - 100's of items
CALL 714/898-0840 or write

☆ **Prices** ☆ **Only With this Ad**

<p>300/1200 Baud Hayes Compatible!</p> <ul style="list-style-type: none"> Runs the popular Hayes communications software FCC approved direct RJ-11 connection Phone Cable & Power Supply one low price <p>Finally a price breakthrough on a Hayes compatible, external 300/1200 baud modem. This low price is without driver software, but if you need it add \$25. Call for a 26 page catalog of our special deals. Look in this spot every month for Hot, New items sure to catch your interest.</p> <p>MOD-8200-00 \$199.00</p>	<p>Power Supplys 135 or 150 Watts*</p> <ul style="list-style-type: none"> + 5V @ 15.0A +12V @ 4.2A +12V @ 5.5A - 5V @ .5A -12V @ .5A <p>IBM-type, best price in Computer Shopper with one year warranty.</p> <p>POW-1040-00 135 watt \$89.00</p> <p>POW-1044-00 150 watt \$99.00</p>
<p>DRIVE SALE</p> <ul style="list-style-type: none"> ■ Panasonic 1/2 ht. \$85.00 ■ TEAC 55-B 1/2 ht. \$95.00 ■ Shugart 1/2 ht. \$275.00 <p>Western Digital Hard Disk Controller with 10 Meg</p> <p>BOA-6375-00 ON SALE \$139.00</p>	<p>Miscellaneous Savings</p> <p>Floppy Controller. Controls up to four drives, 5 1/4" 48/96 TPI</p> <p>BOA-6100-00 \$75.00</p> <p>Clock Calendar Board, fits in "short slot" w/battery Back-up</p> <p>BOA-6375-00 \$45.00</p> <p>64K Memory Chips (9) NEC for IBM</p> <p>KIT-8064-00 \$9.00</p> <p>256K DRAM Memory Chips (9) =256K</p> <p>KIT-9256-00 \$39.00</p> <p>Add-On Memory, (up to 512K)</p> <p>BOA-6350-00 with OK \$99.00</p>
<p>PC-XT Selectric Keyboards</p> <ul style="list-style-type: none"> Single key reset Separate numeric keypad Separate "Arrow" keypad Dimple marked "5", F, & J keys <p>Our volume purchase of these excellent Selectric type keyboards will bring the features you have been wanting down to a price you can't resist. So many features - you'll love it!!</p> <p>KEY-1051-00 IBM Selectric. \$129.00</p> <p>KEY-1050-00 IBM Standard \$89.00</p>	<p>Add-On 10 Meg Tape</p> <p>Runs off your Floppy Controller.</p> <p>SUB-8310-00 \$559.00</p>
<p>8 Slot 640K Motherboards</p> <p>Micro Products International announces TWO powerful new IBM-type XT Motherboards. They hold four rows of 64K or 2 rows of 256K DRAMS and 2 rows of 64K for a 640K TOTAL! The eight expansion slots are spaced at 3/4". Our TURBO version is a high quality 4-layer PC board with dual clocks @ 4.77MHz & 6.67MHz, increasing your throughput by almost MHz!</p> <p>BOA-6058-00 Supplied with OK \$195.00</p> <p>BOA-6078-00 TURBO with OK \$295.00</p>	<p>Add-On 20 Meg Tape</p> <p>If your IBM-AT needs a little help in the Back-up category, you won't be able to beat this price! Cables, software and everything!</p> <p>SUB-8320-00 \$595.00</p>
<p>7 PAK Multifunction</p> <ul style="list-style-type: none"> Floppy Disk Controller Parallel Port 1 Std./1 optnl Serial Game Port Clock/Calendar Software <p>This was designed to accompany our world-famous TURBO Motherboard.</p> <p>TURBO Motherboard \$189.00</p>	

\$1388.00 WOW!

Complete System! XPC TURBO

NEW Features!

- RAM Disk
- Game Port
- 640K Capacity
- PrintSpooler
- Turbo mode!

4.77MHz to 6.67MHz!

- Serial
- Parallel
- Real Time Clock

10 Meg H.D. Complete System! \$1795.00

20 Meg H.D. Complete System! \$1995.00

40 Meg w/Tape Complete System! \$2995.00

Software

- XWORD
- XBASIC
- XBASE
- XCALC
- XCOM

Check These Standard Features:

- Full-Size, Feather-Touch, Capacitance Keyboard, 10 Function Keys, Calculator-Type Numeric Keypad
- Parallel & Serial I/O • Real Time Clock • Gam Port • 2-Slimline 5 1/4" DS/DD 48 TPI 360K Drives
- 8 IBM expansion slots • RAM Disk • Print Spooler • 4 DMA & 3 Timer channels
- Full 640K capacity on-board • 8088 16-bit CPU • Monochrome Video Card
- Up to 32K of EPROM (full 8K supplied) • Supports PC-DOS • MS-DOS • CP/M-86
- Power Supply Hard-Disk-Ready, no need to add-on additional power
- Hi-res 12" Monitpr, Green/Amber Screen, 25MHz bandwidth

714/898-0840
Fax: 714/897-3363
Telex: 887841 XORDATA HTBH
15392 Assembly Lane, Unit A • Huntington Beach, CA

DATA ACQUISITION & CONTROL

The most versatile and cost-effective "REAL-WORLD INTERFACE" for your personal computer. Our systems give you complete Analog and Digital I/O capabilities. Measure temperature, pressure, flow, weight, etc. Whether in the lab or in the field, Data Acquisition and Process Control are now easier than ever. Systems from \$549. Call the factory.



- EXPANDABLE
- TRULY PORTABLE
- BATTERY OPTION
- BUILT-IN BASIC
- NON-VOLATILE MEM
- STAND ALONE ABILITY

RS-232 interface connects to a terminal or any computer. Accepts cc mmands from any language (BASIC, C, etc.) Standard system: 16 ch. 12 bit A/D, 2 ch. D/A, 32 bits DIGITAL I/O. Chassis can hold 2 additional boards. Expansion boards: Digital I/O, A/D, timer/counter, triac, opto-isolator, relay, etc. Direct bus connection for many computers (Epson Geneva, TRS Model 100, NEC.)

ELEXOR ASSOCIATES

(201) 299-1615
P.O. Box 246,
Morris Plains, NJ 07950

IBM XT[®] COMPATIBLE



SPECIFICATIONS	
Processor	8088 CPU and socket for 8087 numeric processor
Clock rate	4.77 MHz
ROM	12K
RAM	128K (Expandable to 1MB)
Expansion slot	8 IBM PC compatible slots
DMA	4 channels
Timer	3 channels
Interrupts	8 levels of vectored interrupts
Parallel port	1 Centronic printer port
Keyboard port	1 five-pin connector for an IBM PC compatible keyboard
Reset port	A reset switch for hardware reset
Serial port	2 serial interfaces RS-232, 110 to 19,200 baud
Speaker port	1 connector for external speaker
Floppy drive port	Controls up to four drives
Hard disk port	Host adaptor built-in to interface with hard disk controller
Color display board	High resolution 640 x 200 40/80 x 25 text display RGB and composite video connectors are available
Disk drive	Two 5 1/4" floppy disk drives 320K bytes per drive option for hard disk - 5MB, 10MB or 15 MB
Key board	IBM-PC compatible
Power supply	130 watts, 110/220VAC, 50/60Hz

- Full Mega-Byte RAM capacity on board.
- Up to 8 multi-users with MP/M-86
- CPU8088 (optional 8087 processor)
- RS-232 Centronics printer port, floppy disk controller and Winchester host adaptor built-in
- Controls up to 4 drives, DS/DD with 360K capacity
- 80/40 x 25 text display, color graphic resolution 640 x 200
- IBM compatible plug-in keyboard
- Applicable in: MS-DOS, CP/M-86, MP/M-86, CCP/M-86, UNIX, UCSD-P

- IBM is a registered trademark of International Business Machines Corp.
- CP/M is a registered trademark of Digital Research, Inc.
- OASIS is a registered trademark of Phase One System, Inc.
- Prices and specifications subject to change without prior notice

PC-INTERFACE CARDS

PSA-2951 COLOR GRAPHIC BOARD	\$84.95
<ul style="list-style-type: none"> • With outputs for R.G.B. color monitors, composite color monitors • Text mode: <ul style="list-style-type: none"> 40 col x 25 row color/black and white 80 col x 25 row color/black and white • Graphic mode: <ul style="list-style-type: none"> 320 dots x 200 lines color/black and white 640 dots x 200 lines black and white only 	
PSA-2952 MULTIFUNCTION CARD	\$129.95
<ul style="list-style-type: none"> • Memory can be expandable to 256K • Real time calendar clock with battery back up • Two asynchronous RS-232 ports: 1 built-in, 1 optional • One parallel printer port 	
PSA-2953 FLOPPY DISK CONTROLLER CARD	\$49.95
<ul style="list-style-type: none"> • Double sided, double density • Can support four floppy disk drives • Easily installed in a compatible computer without any adjustment 	
PSA-2954 MONOCHROME DISPLAY CARD	\$69.95
<ul style="list-style-type: none"> • Supports 256 different character codes on 4K ROM, 4K display buffer on static RAM • With TTL monochrome video output 	
PSA-2955 RS-232 SERIAL INTERFACE (MULTI-USER CARD)	\$89.95
<ul style="list-style-type: none"> • Two standard DB-25 ports protocol programmable 	
PSA-2956 512K MEMORY BOARD	\$49.95
<ul style="list-style-type: none"> • Starting address programmable • Memory capacity setting with switch 	
PSA-2959 MONOCHROME GRAPHIC/PRINTER CARD	\$109.95
<ul style="list-style-type: none"> • High resolution monochrome character/graphic capability • Two graphic pages with a resolution of 720 dots x 348 lines • Software supplied with the graphic card allows the use of the basic graphic commands • Centronic parallel printer interface 	
PSA-2960 384K MULTIFUNCTION CARD	\$124.95
<ul style="list-style-type: none"> • Memory expandable to 384K • 1 serial port, time, 1 parallel port, 1 game port 	
PSA-2961 PRINTER CARD WITH CABLE	\$34.95
<ul style="list-style-type: none"> • Centronic parallel interface • Standard TTL level 	
PSA-2962 I/O PLUS CARD	\$69.95
<ul style="list-style-type: none"> • 2 RS-232 ports, 1 joystick port, 1 printer port, 1 clock/calendar port 	
PSA-2963 JOYSTICK CARD	\$24.95
<ul style="list-style-type: none"> • For joystick or other special controller • Digital analog input/output available 	
PSA-2964 MULTI I/O DRIVE CARD	\$119.95
<ul style="list-style-type: none"> • 5 1/4" floppy disk drive adapter, can drive two disk • One asynchronous communication adapter • Parallel printer adapter • Game joystick adapter • One clock/calendar with battery back-up 	
PSA-2965 ASYNC RS232 SERIAL CARD	\$34.95
PSA-2966 HARD DISK CONTROLLER CARD	\$179.95

PSA-PC-SERIES

MODEL #	DESCRIPTION	PRICE
PSA-PC-128K	128K Memory	\$999.95
PSA-PC-256K	256K Memory	\$1,049.95
PSA-PC-512K	512K Memory	\$1,099.95
PSA-PC-1024K	1024K Memory	\$1,199.95

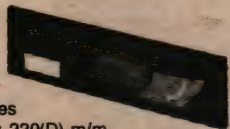
PSA-PC-DRIVES

MODEL #	DESCRIPTION	PRICE
PSA-SLD-Bare	Slimline Drive	\$99.95
PSA-10-M	10 Meg Hard Drive with controller card	\$679.95
PSA-20-M	20 Meg Hard Drive with controller card	\$899.95

APPLE \$99⁹⁵

II/Ile Compatible Floppy Disk Drive Half Height

- Single Sided
- Track Density: 48 TPI
- Tracks/Disk: 35
- Data Capacity: 143.36 K.Bytes
- Dimension: 150(W) x 50(H) x 220(D) m/m
- N.W.: 1.9 Kgs



JOYSTICK

- Apple II + Ile, IIC, or IBM pc compatible
- Self-centering w/metal handle
- Adjustable verticle and horizontal

\$15⁹⁵



PRINTERS

Thermal Transfer Printer	\$79.95
Compact Dot Matrix Printer	\$99.95
Near Letter Quality Dot Matrix	\$499.95
4 Color Printer/Plotter	\$149.95
HUSH-80 Printer	\$99.95
Rolls of Paper	\$3.99

MONITORS

12" Green	\$89.95
12" Amber	\$89.95
14" Color	\$299.95
12" RGB-Composite	\$349.95

MODEMS

1200 Baud Rate	\$279.00
(Hayes Compatible)	
Apple Zoom II E	\$119.95
(with software)	
Zoom II E Plus	\$149.95
(with advanced software)	
Network	\$79.95

COMMODORE

DRIVES

PSA-CS-1	\$199.00
MSD-SD-1	\$209.00
MSD-SD-2	\$429.00

LIGHT PEN

Mc Pen	\$34.95
Tech Sketch (with animator)	\$29.95

VOICE MODULATOR

	\$44.95
--	---------

MODEM

300 Baud	\$34.95
----------	---------

MONITOR CABLE

	\$5.95
--	--------

RS232

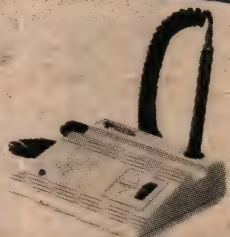
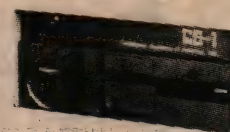
	\$39.95
--	---------

PRINTER INTERFACE

W/Graphics	\$49.95
Text Only	\$19.95

JOYSTICK

	\$14.95
--	---------



SOFTWARE

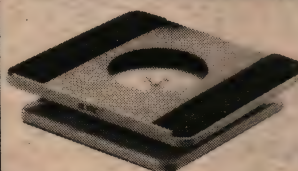
BACK-UP COPY PROGRAM \$24.95

TERMINAL PROGRAM \$24.95

MODULAR 5 ACCOUNTING SYSTEM

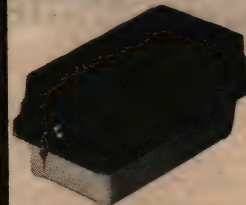
General Ledger	\$24.95
Accounts Receivable	\$24.95
Accounts Payable	\$24.95
Payroll	\$24.95
Inventory	\$24.95

ADJUSTABLE MONITOR STAND \$14⁹⁵



- Tilts and swivels display
- Rotates 360°
- Tilt-angle adjustable and lockable
- Rubber pads on top and bottom guarantee no slipping
- Holds all size monitors

DISK STORAGE \$10⁹⁵



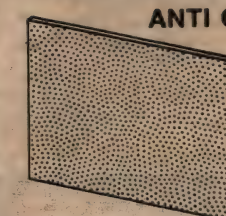
- Elegant appearance
- Key lock for file integrity
- Smoke top w/beige base
- Protect up to 100 5 1/4" diskettes
- Ten movable dividers
- Non-slip guides keep disks upright and flat

DISK NOTCHER \$5⁹⁵



- Accurate position guide
- Hand-held compact design
- Square notch-cut
- Sturdy, all-metal construction

ANTI GLARE SCREEN \$15⁹⁵



- Fit 12" to 14" Video Display Terminals
- Reduce Glare from VDTs on color and monochrome screens
- Enhance the contrast between image and background
- Easy mounting

PERIPHERALS

Dallas, Texas
(214) 466-0755



VISA
MASTERCARD
ACCEPTED

Please add on 4% for
VISA or MasterCard orders.



TERMS:

- Cashier's check or money order only
- FREE S&H for prepaid orders over \$100.00
- Texas residents please add 6 1/8% sales tax
- 10% restocking charge for orders returned or refused
- Shipping charges additional
- Quantities limited
- Prices subject to change without notice

Jackintosh Logo Continued from page 174

the upper right and clicking the left key.

To save our program to a disk file we place the Mouse pointer over the FILE position, and choose the SAVE AS option. A pop-up block appears, allowing us to name the file which we are saving.

A vertical bar shows the left edge of our title. However, to add our suffix if used we can press the ".". This moves our cursor to the first position to the right of the period.

Position the Mouse pointer at the OK block and clicking the left key once saves the program on disk, and clears the SAVE AS pop-up window from the screen.

This has been a very simple WALK-THROUGH. There are a wide and varied assortment of possibilities to explore.

Key Areas

Graphics capability, particularly the turtle, is an eye-

catching part of any LOGO implementation. And Atari LOGO is no exception. Drawings are quick and distinctive, easily accomplished with keys or using the Mouse. The color display does an excellent job in the quality of the hues and in the degree of resolution. The Mouse, with some simplistic programming, is an excellent drawing tool.

Wordlist operations can be carried out effectively and rapidly with the provided set of instructions. Words and lists correspond to those normally found in the language. Recursive entries are, of course, supported. When carried to an extreme the stack may become full. The stack may, however, be expanded by the programmer.

Window operation seems to be excellent in support of LOGO. Although I prefer the capability to select through displayed examples, the approach taken here is viable. Overall the window operation seems to have been well

thought-out.

The Mouse responds well, but takes a little getting used to. After you feel comfortable with it you may find yourself reaching for it even when the instructions could just as easily be typed in. You don't require a lot of space to use the Mouse, since you can quickly pick it up and reposition it if it reaches an obstacle. It definitely is supportive of the LOGO usage.

PROs and CONs

I have used the LOGO language on several computers. I find some of the other versions more comprehensive and more friendly, perhaps due in part to familiarity. However, when the capabilities provided by the Mouse and the windows are considered the Atari version may be preferable. Nevertheless the latter does have some faults. Some statements - The ARC statement, for example - are not too convenient to use. There is no provision for accessing the sound capability of the system. Nor is there a method provided to set and use the function keys. An assembly language capability is not present. Finally, there is a need for a tutorial to accompany the documentation.

It may well be that the current version of the language -- as well as the Operating System -- is not the final one. I read of the possibility of both being provided in firmware form. If this occurs the versions encoded may well correct such deficiencies as I've noted.

Summary

Atari LOGO is a usable and exciting version of LOGO. It is not as comprehensive as some versions, but this is at least partly offset by the inclusion of the Mouse and the Windows. In the final analysis its value depends on the use to which you intend to put it.

Good News

Continued from page 176

enclosing the affected text. This means formatting on the screen a little off from the finished document.

The command format uses control keys to enter most commands. This is fine but it looks like they picked their commands at random. Control-N erases all text, Control-Y removes a paragraph, Control-V deletes a line, etc. Also the format paragraph requires you to have blank lines between paragraphs or you get very unreliable results. Of course part of our problem with the commands is that we are used to a different set and, like most people, we don't want to have to learn a new set. Although if you have trouble remembering the commands all you need to do is hit help and they are displayed for you.

All in all, we feel that Express is a useful tool for small jobs. Not that you couldn't do a large document with it, but it's not really designed for them. Give Mirage Concepts credit for coming right out and calling this a letter processor. Also we like the fact that the

program isn't copy protected. Nothing is more frustrating than having a program you use regularly die and having to wait a few weeks to get another copy. Also on the plus side is that Express is quick to get started with, which makes it very useful to the occasional user.

The only other program we have been able to use extensively is Chat from SST systems. We hesitate to write about it because SST is our company and we wrote Chat. But we have been getting a lot of calls from people wanting to know what Chat does and how well it works. So we are going to write about it to answer these questions, just bear in mind that we do have a biased opinion.

Chat is a modem program for that Atari ST series of computers. It auto-dials if you have a Hayes compatible Smartmodem, transfers files using XMODEM and XON/XOFF protocol, has text capture and a special upload message mode. Both protocols run at either 300 or 1200 baud. There is a built-in phone directory

Continued on page 179

FRIENDLY PERSONALIZED SERVICE!



ALL SYSTEMS IBM-PC COMPATIBLE

All Systems Include MS-DOS Operating System

ZF-151-20 128K, COLOR OR MONO COMPATIBILITY	1195
ZF-151-21 128K, 1 DRIVE, COLOR OR MONO	1695
ZF-151-52 320K, 2 DRIVE, COLOR OR MONO	2045
ZV-151-52 320K, 1 FLOPPY, 1 10 MEG WINCH. HARD	2995
ZFA-161-21 128K PORTABLE, 1 DRIVE, 9" DISPLAY	1795
ZFA-161-52 320K PORTABLE, 2 DRIVE, 9" DISPLAY	2195
ZFA-138-21 128K LIGHTWT, 1 DRIVE, 7" DISPLAY	1295
ZFA-138-42 256K LIGHTWT, 2 DRIVE, 7" DISPLAY	1495
ZF-148-21 128K, ENTRY LEVEL PC, 1 DRIVE	1145
ZF-148-42 256K, ENTRY LEVEL PC, 2 DRIVE	1395
ZF-241-81 512K, ADVANCED PC AT-COMPAT., 1 DRIVE	2995
ZF-241-82 512K, 1 FLOPPY, 1 20 MEG WINCH. HARD	4195
ZVM-122-A 12" AMBER MONITOR	89
ZVM-123-A 12" GREEN MONITOR	87
ZVM-130 13" MEDIUM RESOLUTION COLOR	259
ZVM-133 13" HIGH RESOLUTION RGB COLOR	439

Call or write for our Zenith catalog
with a full line of Hardware and Software

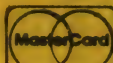
Panasonic Printers

All Models excluding KX-3151:
Tractor and Friction Feed INCLUDED!

KX-1090 (80 cps, 10")	199
KX-1091 (120 cps, 10")	259
KX-1092 (180 cps, 10")	389
KX-1093 (160 cps, 15")	499
KX3151 (22 cps, 15") Letter Quality Daisy Wheel	449



CALL (716) 475-3007



Add 3% for shipping.

Ordering: Prepaid, C.O.D., Visa or Mastercard.

24 Hr. Processing

BARCLAY COMPUTERS

524 Depot Street
Williamsport, PA 17701

NEW

FREE CATALOG

CP/M
MSDOS

AFFORDABLE ENGINEERING SOFTWARE

TRSDOS
PCDOS

- **LOCIPRO** Root Locus — \$69.95
- **ACTFIL** Active Filter Design/Analysis — \$69.95
- **STAP** Static Thermal Analysis — \$69.95
- **MATRIX MAGIC** Matrix Manipulation — \$69.95
- **RIGHTWRITER** Proofreader & Writing Style Analyzer — \$74.95
- **ACNAP2** AC Circuit Analysis — \$69.95
- **DCNAP** DC Circuit Analysis — \$69.95
- **SPP** Signal/System Analysis — \$69.95
- **PLOTPRO** Scientific Graph Printing — \$69.95
- **PCPLOT2** High Resolution Graphics — \$69.95



Engineering
Professional Software

2200 Business Way, Suite 207 • Riverside, CA 92501 • (714) 781-0252



window around just be placing the arrow on the shaded portion on the top of the panel box, holding down the button, moving the arrow (followed by a box outline) to the new desired location. Then letting the Mouse button up, the Control Panel window moves there in a timely manner. Now I wanted to return the first menu so I placed the arrow on the X-box in the upper left corner of the panel and one-clicked the Mouse. Back to Figure 1.

Window Relocation

While I was doing this, my

Continued on page 179

I Own an Atari Continued from page 178

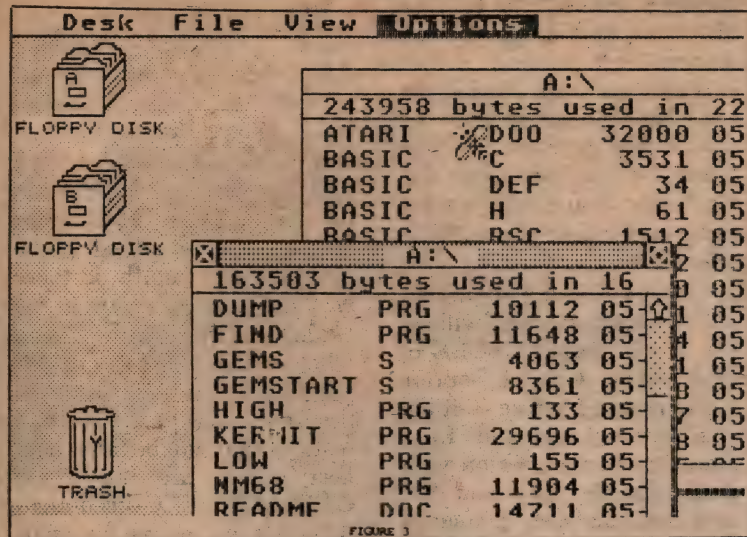


FIGURE 3

Development package arrived. I'll use it to illustrate some more, basic capability of this potentially great computer. Window relocation is done by moving the arrow to VIEW and dropping down to "Show as Text" followed by one-click, followed by moving to FILE, OPEN which produces a window box containing a directory of what was on one of my new disks. I placed the arrow on the top shaded area of this window and while holding the Mouse key down moved the arrow

followed by a box outline to a new location. This is the upper right directory on Figure 3.

I next moved the arrow to the top floppy ICON and one-clicked which turned it black. Then to the FILE, OPEN menu and one-clicked again. This produced a directory on the second disk I placed in the floppy. Placing the arrow on the shaded part of the second directory, holding down the Mouse button, I moved the new box to the location seen in Figure 3. Taking the lower

right slash-box holding down the Mouse button I move the box-outline to make Number TWO directory smaller. At this point, I did the CONTROL, HOME printer bit which created a dump of the screen as seen in the Figure 3 we have been discussing. By the way, by still having the first directory on the screen, you can move the arrow to the previously shaded upper bar, one-click the Mouse and the first directory appears on top of the second one.

Printer Installation

My first screen dump was junk. I had to go back to DESK followed by INSTALL PRINTER to get to the various built in options. With my Epson MX-80 printer, the only default I had to change was from 1280 to 960 pixels/line. You can option and save printer type, B/W or color, pixels/line, Quality (draft or final), Printer Port (printer of modem) and Paper Type (feed or single). Each of you will

Continued on page 185

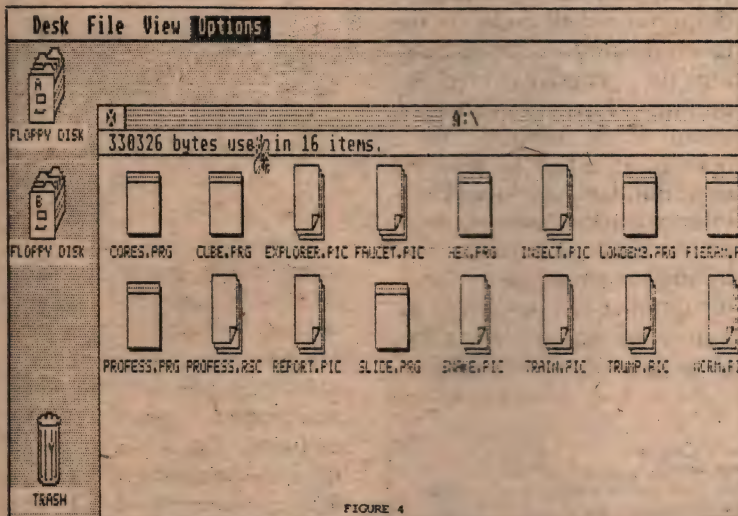


FIGURE 4

ATARI

Atari 130XE Computer	.....\$145
Atari 520 ST Computer	.....\$Call
Happy 1050 Enhancement	.....\$159
Happy Atari 1050 Drive	.....\$350
Atari 1050 Disk Drive	.....\$175
Omniview 80 Column Screen	.....\$49
Atari Numeric Keypad	.....\$29
Atari 850 Interface	.....\$115
Atari Writer	.....\$35
800XL & 1050 Package	.....\$259
520ST, Drive, BW monitor	.....\$650
520ST, Drive, color monitor	.....\$770
ST Service Contract	.....Call

DYSCOM COMPUTERS
1279 Tumbleweed NE
Uniontown, OH 44685
216-877-1197
Add 2% S&H (min. \$3) 4% Visa/MC
Call or Write For Price List

Probots and People Continued from page 77

with my computer?" And, for some, the most intriguing question to be answered might be "how can I make a million dollars in personal robots like so many people did with personal computers back in the 1970's?"

Where You Can Learn More

Even though this forum on personal robotics should be interesting and a lot of fun, you might want to learn more about the subject on your own until next month. Most book stores don't have a section on "Robots," but I would suggest exploring the following:

-The technical book section of a bookstore

-Robotics Age magazine, available at many newsstands

-Contact publishers or manufacturers directly, like: Tab Books, Inc. (Blue Ridge Summit, PA), Axlon, Inc.

(Sunnyvale, CA), Tomy Corporation (Carson City, CA), Heath Company (Benton Harbor, MI), Howard W. Sams (Indianapolis, IN)

Next month we'll be looking into the hottest-selling toy in the world right now: transformable robots. Believe it or not, these inexpensive playthings will be a key element in the slowing emerging personal robot revolution that we'll all be enjoying over the next five to ten years.

Tim Knight publishes *Personal Robotics Magazine* and is the President of Robot Center, the first personal robot store in the Silicon Valley. He also wrote the first book dealing with personal robots, *Probots and People: The Age of the Personal Robot*, from McGraw-Hill. You can write him at P.O. Box 61046, Palo Alto, CA 94306-1046.

HARD DRIVE

\$219.00

IBM compatible 10 MBYTE

IBM PC Upgrades

10 MBYTES INTERNAL	.....\$398.00
20 MBYTES INTERNAL	.....\$595.00
100 percent complete ready to use	
10 MBYTE EXTERNAL	.....\$599.00
20 MBYTE EXTERNAL	.....\$895.00
100 percent complete ready to use	

Apple II Hard Drives

10 MBYTE EXTERNAL	.....\$625.00
20 MBYTE EXTERNAL	.....\$1095.00

MACINTOSH HARD DRIVE

10 MEGABYTE	.....\$1595
20 MEGABYTE	.....\$1895

Fast 5 Megabits Sec X Per Rate 85 M.Sec Avg Access
Time No ROM or Pwr Supply Change
Dealers Wanted

**peripheral
land**

3400 El Camino, Suite 10, Santa Clara, CA 95051
Or call 408-248-5282 anytime.

Certified checks & money orders. We ship COD certified checks only. Californians add 6 1/2 percent sales tax. Actual freight charged on all orders. All items 90-day warranty included.

KAO INDUSTRIES, INC.

SYNCO

PC1600 COMPUTER



T88 TERMINAL

A low cost terminal which can emulate Televideo 910/920, Adds Viewpoint or Hazeltine 1410 with 12" nonglare green screen.

\$399

OTHER PRODUCTS:

TM1200A or TM1200G - 18MHZ, 800 lines, amber or green	\$99
TM1230A - 18MHZ, 1000 lines, swivel and tilt	\$159
TM1231A - TTL, dark body, swivel and tilt	\$179
CM1435 - Low resolution, color, green and color switch	\$199
CM1425 - Medium resolution RGB	\$Call
CM1416 - High Resolution RGB	\$Call

FREE SHIPPING CONTINENTAL U.S.A.
MD RESIDENTS ADD 5% SALES TAX

A fully IBM PC compatible computer manufactured by SHINLEE CORPORATION using highest quality components

- ASTEC power supply
- YE-DATA or TEAC disk drive
- KEYTRONIC OEM keyboard

\$1395

Run flight simulator Lotus 123, DBASE III, etc. UL listed and FCC approved.
25K RAM, two 360K drives, serial port, parallel port, color graphic card, MSDOS 2.11 and user manual with TM1200A or TM1200G.

Applying the Atari Continued from page 63

cassette) or LIST "D:TEMP" (for diskette) the program. Next, load in the old Program-mable Keypad program. Type ENTER "C:" or ENTER "D:TEMP" and the new lines will automatically be merged with the old program. Now you can SAVE the revised program on cassette or disk.

Mailing List Enhancements

June's Mailing List program has generated an enormous amount of interest, and this month we have additional routines for this program to make it even more practical.

Part I contains changes that are to be made in existing lines. Load the original Mailing List and type in the lines listed in Part I. Part II contains lines to be added to the program. Type in these lines. Once Part I and Part II have been entered,

LIST "C:" or LIST "D:TEMP" the program.

Now, enter lines 1380 through 1800 listed under Part III. If you have Program Perfect, you can use it to enter these lines. When all lines have been entered, ENTER "C:" or ENTER "D:TEMP" the rest of the program to merge it with Part III. Now you can SAVE the complete updated Mailing List, which we'll call Mailing List II.

Using Mailing List II

Now, when adding names, you won't have to constantly respond to the "MORE NAMES (Y/N)" prompt. The program will automatically assume that you are adding more names. When you are finished adding names, press the ESC key and you'll be returned to the main menu.

You'll notice on the menu the addition of another option — SEARCH. When you

choose this option, another menu appears which asks if you want to search by name, street, city or zip code. The name search functions the same as it did on the original program. However, whenever a name (or street, city, or zip) is found, you are asked if you want to edit that entry or if you want to continue searching for another match. With any search, you can enter only a part of what you want to find and the program will pick out all items that match that part. For example, if your address is 10 MAIN STREET, but you can't remember whether it was 10 MAIN STREET or 10 MAIN ROAD, just enter "10 MAIN." All address entries beginning with "10 MAIN" will be displayed one at a time. This technique can also be used when searching by zip code. Searching for the five digits of a zip code will also display any nine-digit codes that match those first five digits.

When searching for an entry, remember to use the same format, (all-capitals or capital and lower-case letters), as you used when you originally entered the entry. For example, if you search for "Computer Shopper," the program can not find "Computer Shopper," so be sure to stay with one form or the other.

Another feature added is a six-digit identification code. This code is actually composed of the byte and sector number of the location on the disk where the particular name and address is being stored. Hence, by referring to the six-

digit code, the program can instantly access any name on the disk without having to look through each name.

Whenever you choose the LIST NAMES option from the main menu, each name will be listed with its respective six-digit code. You could then jot down codes that you want to refer to later.

When you select the EDIT option, Mailing List II will ask you if you want "CYCLE or ID#." The CYCLE option works as it did before — it lets you move back and forth among the addresses on your disk with the "▲" and "▼" keys. You can freely change information on the names and addresses as you move through the entries. The ID# option enables you to enter the six-digit code to gain instant access to a particular name/address.

The PRINT option now has two additional features. You can enter an ID# from which to begin printing address labels. Hence, if you only want to print labels for, say, the last ten names you have entered, you would simply enter the six-digit code for the tenth to last name/address. Additionally, you're given the option of printing the six-digit codes on the labels themselves. Many mailing list programs used by businesses have this feature. A client who responds to a mailout is asked to give his code numbers, or to return a form with this code number printed on it. When the business receives the response, the number can be used to instantly call up the client's file, or to generate a new label.

Recipe Program

This month's feature program is *Recipe Manager*. *Recipe Manager* can store your favorite recipes in electronic form. As you browse through recipes on your screen, you can pick one and print it on the printer. Two additional features will be added to the program next month, as there was not enough room to include them this month. (Those who request a diskette of this program will receive the entire program in one part.) The two features that will be listed here next month are the FIND CATEGORY/RECIPE option, which lets you search for a particular category of recipe or recipe name, and the CALCULATE RECIPE option. This interesting option will automatically double, triple, halve, etc. The measurement of ingredients of any recipe so that you may instantly adjust recipes for different quantities. You can then print out the recalculated recipe and take it into the kitchen. If you select these options with this month's listings, you'll get a "THAT COMMAND IS NOT AVAILABLE YET" message.

Use Program Perfect to type in *Recipe Manager*. Since the program stores recipes on the diskette, you'll want to save the program on a blank diskette so you'll have as much room as possible for storing recipes.

When you RUN the program, you'll get a specially designed Graphics 0 screen. The top two and bottom two text lines are dark, while the remaining lines are blue. The blue center is where the recipes are typed. This is a mini-screen in itself, consisting of 20 lines of 36 characters each. The top two lines display the *Recipe Manager* title and the particular menu function currently being used. The bottom two lines are prompt lines and tell you what keys are active (i.e. PRESS RETURN TO PRINT THE RECIPE) or special messages (i.e. NO RECIPE FILE ON DISK-ADD RECIPES). These lines also display the menu options: ADD, BROSE/EDIT, FIND, PRINT, CALCULATE. The ADD, BROWSE/EDIT and PRINT options can be used with this month's listing.

When you run the program for the first time, you'll want to add recipes. When you press A (for ADD) the cursor moves to the recipe screen and you're asked to enter a CATEGORY. Type the category that you want to place the particular recipe in, such as appetizers, soups, main dishes, holiday recipes, etc. Next you're asked

KEYPAD PROGRAM 3

```
FOJ 10 REM NUMERIC KEYPAD PROGRAM #3
KFJ 20 REM COPYRIGHT 1985 JEFF BRENNER
JWJ 30 TOT=0:FOR I=1536 TO 1616:READ NUM
OOJ 40 POKE I,NUM:TOT=TOT+1:NUM=NEXT I
TBJ 50 IF TOT=136774 OR TOT=136785 THEN A=USR(1536):END
FBJ 60 PRINT "ERROR - CHECK DATA":END
PFJ 70 DATA 184,162,6,168,18,169,7,76
OMJ 80 DATA 92,228,174,132,2,248,5,282
UKJ 90 DATA 134,284,248,48,174,128,2,228
WSJ 100 DATA 286,288,4,165,284,288,29,165
WBJ 110 DATA 285,248,4,198,285,248,21,238
XVJ 120 DATA 284,134,284,238,285,173,113,2
OPJ 130 DATA 281,1,248,2,162,16,189,63
PLJ 140 DATA 6,141,252,2,76,98,228,52
HJJ 150 DATA 24,29,27,35,51,53,48
XNJ 160 DATA 43
MRJ 170 DATA 31,38,26,58,34,12,14,28
BEZ 180 DATA 155
```

PROGRAMMABLE KEYPAD REVISION

```
WVT 90 IF TOT=136785 THEN A=USR(1536):GOTO 250
KZJ 110 DATA 184,162,6,168,18,169,7
NHJ 120 DATA 76,92,228,174,132,2,248
ONJ 130 DATA 5,282,134,284,248,48,174
MYJ 140 DATA 128,2,228,286,288,4,165
PAJ 150 DATA 284,288,29,165,285,248,4
SOJ 160 DATA 198,285,248,21,238,284,134
QJJ 170 DATA 286,238,285,173,113,2,281
JLJ 180 DATA 1,248,2,162,16,189,63
JZJ 190 DATA 6,141,252,2,76,98,228
HLJ 200 DATA 52,24,29,27,35,51,53
HDJ 210 DATA 48,43,31,38,26,58,34
RVZ 220 DATA 12,14,28,155
```

PART I

```
140 RESTORE 160:FOR I=1 TO 6:READ A$:PRINT CHR$(ASC(A$)+128):A$(2,LEN(A$))
160 DATA ADD NAMES,EDIT,LIST NAMES,PRINT,FREE DISK MEMORY,SEARCH
210 PRINT :ON I GOTO 230,650,1040,1120,1350,1380
370 IF K=27 AND CC=2 THEN 610
600 IF K<27 THEN 630
690 PRINT E$;"CYCLE OR ID# (C/I)?":GET #1,Q:PRINT CHR$(Q):IF Q=67 THEN 710
700 IF Q<73 THEN PRINT CHR$(156):GOTO 680
940 GOSUB 1740:INPUT #2,S,B,NAMES,ADDR$,CSZ$,CAT$
970 FOR I=LEN(NAMES) TO 1 STEP -1:IF NAMES(I,1)=CHR$(32) THEN NEXT I
990 PRINT "FOUND":GOTO 1640
1000 PRINT :PRINT "NOT FOUND":GOTO 1090
1050 GOSUB 1740:NOTE #2,S,B:INPUT #2,I,I,NAMES,ADDR$,CSZ$,CAT$
1070 PRINT :PRINT "ID #":ID$:PRINT NAMES:IF PEEK(764)=28 THEN 1100
1240 GOSUB 1740:INPUT #2,S,B,NAMES,ADDR$,CSZ$,CAT$
1270 IF Q=0 THEN NAME$=NAMES:ADDR$=ADDR$:CSZ$=CSZ$:GOTO 1285
1340 NAME$=NAME$:TRAP 1330:Q=0:GOTO 1285
```

PART II

```
45 DIM ID$(6),ID2$(6)
295 CC=0
345 IF PEEK(85)=34-H AND K=156 THEN PRINT CHR$(K);
355 IF K>47 AND K<58 THEN 330
375 IF K=27 THEN POKE 84,15:POKE 85,2:GOTO 480
702 TRAP 680
705 PRINT "ENTER 4-DIGIT ID: ";:INPUT #3,A$:IS=VAL(A$(1,3)):IB=VAL(A$(4,6))
706 POINT #2,IS,IB
935 TRAP 1000
945 NAME$=NAME$:ADDR$=ADDR$:CSZ$=CSZ$
975 FOR I=1 TO 1 STEP -1:IF NAMES(I,1)=CHR$(32) THEN NEXT I
1175 PRINT :PRINT "PRINT FROM WHAT ID# (0=START)":INPUT ID$
1176 ID1=0:IF LEN(ID$)=6 THEN ID1=VAL(ID$(1,3)):ID2=VAL(ID$(4,6))
1185 PRINT :PRINT "PRINT ID NUMBERS (Y/N)":INPUT Q$:IF Q$="Y" THEN VB=VB-1
1235 IF ID1>0 THEN POINT #2,ID1,ID2
1265 IF Q=0 THEN ID2=ID$
1275 IF LEN(NAME$)=0 THEN ID2=ID$
1282 IF Q<>"Y" THEN 1290
1285 PRINT #5,SP$(1,5);ID2;SP$(12);:IF Q THEN PRINT #5,SP$(1,HS+5);ID$;
1286 PRINT #5
```

PART III

```
DUJ 1380 TRAP 678:OPEN #2,12,8,FILE$:NOTE #2,IS,IB
WBJ 1390 CLOSE #5:OPEN #5,4,8,FILE$:INPUT #5,FS,FB,FS,FB
WSJ 1400 FOUND=0:PRINT "SEARCH BY":RESTORE 1420:PRINT :FOR I=1 TO 4:READ A$
CJJ 1410 PRINT CHR$(ASC(A$)+128):A$(2,LEN(A$)):PRINT :NEXT I
CBJ 1420 DATA NAME,STREET,CITY,ZIP
TBJ 1430 POKE 694,8:POKE 702,64:PRINT CHR$(156):"SELECT: ";GET #1,D
VDJ 1440 IF Q=78 THEN 890
TRE 1450 IF Q<83 AND Q<67 AND Q<98 THEN 1430
EAE 1455 PRINT :PRINT "FIND: ";:INPUT #3,A$:POINT #2,IS,IB
OPJ 1460 TRAP 1718:NOTE #2,ST,BT
QUE 1470 GOSUB 1740:INPUT #2,S,B,NAMES,ADDR$,CSZ$,CAT$
WNE 1475 NAME$=NAME$:ADDR$=ADDR$:CSZ$=CSZ$
ZAJ 1480 IF Q<83 THEN 1530
WEJ 1490 A=ASC(ADDR$):IF LEN(ADDR$)<3 THEN 1505
GWE 1500 IF A>47 AND A<58 OR A=32 THEN ADDR$=ADDR$(2,LEN(ADDR$)):GOTO 1490
ETE 1505 IF LEN(ADDR$)<LEN(A$) THEN 1460
QZJ 1510 IF ADDR$(1,LEN(A$))=A$ THEN GOTO 1640
FKJ 1520 GOTO 1460
ACJ 1530 IF Q<67 THEN 1570
OPJ 1540 FOR I=1 TO LEN(CSZ$):IF CSZ$(I,1)=CHR$(32) THEN NEXT I
LWE 1550 IF I>1 AND I<LEN(CSZ$) THEN CSZ$=CSZ$(1,I-1)
QSA 1555 IF CSZ$(LEN(CSZ$))=CHR$(44) THEN CSZ$=CSZ$(1,LEN(CSZ$)-1)
DND 1560 IF LEN(CSZ$)<LEN(A$) THEN 1460
PIE 1565 IF CSZ$(1,LEN(A$))=A$ THEN GOTO 1640
FOE 1565 GOTO 1460
HXJ 1570 IF CSZ$(LEN(CSZ$))<>" " THEN 1590
AZJ 1580 FOR I=LEN(CSZ$) TO 1 STEP -1
JTY 1590 IF CSZ$(I,1)=CHR$(32) OR CSZ$(I,1)=CHR$(32) THEN NEXT I:GOTO 1460
XNJ 1600 FOR I=1 TO 1 STEP -1:IF CSZ$(I,1)=CHR$(32) THEN NEXT I:GOTO 1460
DEE 1615 IF LEN(CSZ$)<LEN(A$) THEN 1460
PKJ 1620 IF CSZ$(1,LEN(A$))=A$ THEN GOTO 1640
FMJ 1630 GOTO 1460
PMJ 1640 FOUND=1:PRINT "ID#":ID$
ANJ 1650 PRINT NAME$:PRINT ADDR$:PRINT CSZ$:PRINT CAT$:PRINT
VOE 1660 PRINT "<E>EDIT,<C>CONTINUE SEARCH,<N>MENU?":GET #1,A$:PRINT CHR$(A)
LWE 1665 IF (Q=76 OR Q=78) AND A=67 THEN 940
WBJ 1670 IF A=67 THEN 1470
KZJ 1680 IF A=69 THEN PRINT CHR$(125):POKE 84,28:POINT #2,ID1,ID2:GOTO 730
YUJ 1690 IF A<77 THEN 1660
DHJ 1700 GOTO 130
KHJ 1710 IF FOUND=0 THEN PRINT :PRINT "NOT FOUND":GOTO 1730
VOJ 1720 PRINT :PRINT "END OF DATA"
LEJ 1730 A$="PRESS ESC FOR MENU":GOSUB 640:PRINT A$:GOTO 1100
HVJ 1740 NOTE #2,ID1,ID2:ID$=""
JEJ 1750 IF ID1<100 THEN ID$="0"
HNJ 1760 IF ID1<10 THEN ID$(LEN(ID$)+1)="0"
RNJ 1770 ID$(LEN(ID$)+1)=STR$(ID1)
JMJ 1780 IF ID2<100 THEN ID$(LEN(ID$)+1)="0"
HRJ 1790 IF ID2<10 THEN ID$(LEN(ID$)+1)="0"
LKZ 1800 ID$(LEN(ID$)+1)=STR$(ID2):RETURN
```


Good News

Continued from page 178

that lets you store 24 numbers. Echo mode is provided for talking to systems that don't echo back.

You don't need to have a smart modem to use the program. It will work with any 300 or 1200 baud modem. But we only support the Hayes dialing commands. The setup feature allows the user to pre-define the modem type and speed that Chat comes up in. Setup also allows the changing of the default receive and send file names. These can be changed from within Chat as well but we give the user the option of coming up using file names that he chooses.

Chat makes extensive use of the function keys and the mouse. We avoided using any control keys in our commands. We feel that the Atari provides enough special keys that there wasn't any reason to confuse the novice user with control key commands. The user can get a listing of the function key commands anytime by hitting the help key. Aborting transmissions and receptions is done using the Undo key.

Chat XMODEM is a little different than the standard that Ward Christensen developed. The reason for this is that a lot of bulletin boards around the country are written in Basic and run fairly slow. Also Compuserve has a speed problem on very busy nights (Friday and Saturday). What we did was to modify Xmodem so that if you get more than three time-outs on one sector we will switch to a slow mode. This means we will allow ten seconds between characters and twenty seconds between sectors. If you are still timing out we recommend that you either drop to 300 baud or try again on another night.

What we tried to do with Chat is to keep the program as easy to use and as affordable as possible, while providing enough features to satisfy 95% of the ST users. Only time will tell if people agree with us. The suggested retail price of Chat is \$19.95. We feel that this is an excellent value (but we did write it).

The ST has hit the ground running. In a short while there should be a huge amount of software for the machine. If the progress to date is any indication, Atari has a real winner on it's hands. The machine is popular with the small business owners, it is obvious that the hackers and experimenters are having a field day, and there are a lot of software experts out there looking very seriously at the machine. The ST could surprise a lot of people.



Call for programs not listed.

Technical and Other Information (602) 246-2222
TOLL-FREE ORDER LINE 1-(800)-421-3135

SPERRY PC COMPUTER SALE

IBM PC compatible and runs twice as fast.

SPECIAL SALE

\$1650

INCLUDES:

DUAL 360 K DRIVES
256K MEMORY
7 EXPANSION SLOTS
120 WATT POWER SUPPLY

TIME OF DAY CLOCK
WITH BATTERY BACK UP
12" MONO MONITOR
PARALLEL AND SERIAL PORTS
DOS 2.1 INCLUDING GWBASIC
FULL FACTORY WARRANTY

All computers include 54 utility programs free!

Call for pricing on other systems. Authorized Sperry Dealer.

We have over 1000 Software and Hardware items in stock. Shipments on almost all items within 24 hours!

FREE PRINTSET SOFTWARE!

Purchase an Okidata, Citizen, Epson Gemini or Toshiba Printer and receive at no charge a program to set print characteristics including expanded, compressed, correspondence quality, tabs, etc. In addition you can sell your old typewriter! This program will let you type one line from the computer keyboard, correct it, and then print the line when you hit the carriage return. Perfect to type an envelope or short note, instead of bothering to load your word processor. We have this program on over 200 different computer formats, both CP/M and MSDOS. Retail value \$35.

FREE SOFTWARE!

With every \$100 purchase you will receive a free diskette for your IBM PC with label maker, checker game and banner programs

— DATA BASE MANAGEMENT SYSTEMS —

Clout 2	\$129
Condor III	\$299
Fox and Geller Quickcode	\$139
Fox and Geller Quickreport	\$139
Friday	\$159
Knowledgeman	\$225
K Report	\$135
Nutshell	\$55
Personal Pearl	\$215
PFS File	\$78
RBase 5000	Call

— WORD-PROCESSING —

Easy (MicroPro)	\$89
Leading Edge w/Merge/Spell	\$139
Lexisoft Spellbinder	\$265
Microsoft Word	\$225
Multimate	Call
Peachtext 5000	\$145
PFS Write	\$78
Random House Spellchecker	\$36
Samna III	\$265
Volkswriter Deluxe	\$139
Word Perfect 4.0	\$195
Word Plus Spellchecker	\$89
Wordstar 2000	\$238
Wordstar 2000+	\$285
Wordstar Propac	\$239

— SPREADSHEETS —

Lotus 123	Call
Microsoft Multiplan	\$115
Supercalc II	\$145
Supercalc III 2.1	\$169

— ACCOUNTING —

TCS. Big Four Equivalent of Peachtree Series 4 - Specially Augmented and Customized for your IBM PC Terminal and Printer - GL, AR, PR, AP, CP/M, for PC XT, DOS 1.1, 2.0.
Each Module \$65 For all Four \$249

BPI Accounting Module	\$299
CYMA	Call
Dollast & Sence	\$95
Managing Your Money	\$95
Real World, GL, PR, AP, AR	
Each Module	\$350

— TRANSFER PROGRAMS —

Microsoft Access	\$149
Microstuf Crosstalk XVI	\$90
Move-It	\$79
Remote	\$99
Smartcom II	\$88
Transporter	\$149

— UTILITIES —

Copy II PC	\$22
Copy II PC Board	\$79
Norton Utilities	\$52
ProKey 4.0	\$75
Sidekick	\$32
Superkey	\$36

— PROJECT MANAGEMENT —

Harvard Project Manager	\$199
Microsoft Project	\$150
Super Project	\$185

— GRAPHICS —

Chartmaster	\$220
Energraphics	\$170
Fontrix	\$99
Gem Desktop	\$29
Gem Draw	Call
Microsoft Flight Simulator	\$32
Microsoft Bus Mouse	\$110
Microsoft Serial Mouse	\$129
PC Mouse w/Paint Brush	\$120

— LANGUAGES —

Lattice C Compiler	\$249
Lifeboat's Run C Interpreter	\$89
Microsoft Basic Compiler	\$235
Microsoft C Compiler	\$239
Microsoft Macro Assembler	\$89
Microsoft Pascal Compiler	\$179
Microsoft Quickbasic	\$65

— BOARDS FOR THE PC —

AST Advantage	\$385
AST Six Pac	Call
Baby Blue	\$299
Hercules Color Card	\$149
Hercules Graphics	\$295
Quad Board Multifunction OK	\$199
Paradise Five Pak w/64K	\$155
Paradise Mod. Graphics	\$249
Quadboard 64K Expandable to 512K w/Serial Port	\$150
Sigma 384K Board w/Clock	\$139
Sigma AT board	\$289
Sigma Maximizer, Multifunction	\$169
STB Chauffer	\$255
STB Graphics Plus II	\$219
Tecmar Graphics Master	\$465

BUYS OF THE YEAR

Expansion Board 0 to 576K	\$69
KB5151 Keyboard Equivalent	\$89
Hercules Graphic Board w/Par Port Equivalent	\$118
1 Year Warranty - 30 Day Return Privilege.	

— HARD DRIVES —

Bernoulli 20 1/2 Ht (New)	\$2495
Bernoulli 20+ 1/2 Ht (New)	\$2650
Datamac External 10 Mg	\$825
Datamac External 33 Mg	\$1625
Microscience	Call
Seagate 20 Internal w/controller	\$599

— MODEMS —

Anchor Express 1200 Baud	\$239
Hayes 1200	\$375
Hayes 1200 B w/Software	\$345
Promodem 1200	\$309
Promodem 1200 B w/Software	\$265

— RAM —

64K 150NS Chips (set of 9)	\$6.50
256K Ram Chips (set of 9)	\$39.50

— KEYBOARDS —

Keytronics 5151	\$169
-----------------	-------

— MONITORS —

AMDEK	Call on all models
Princeton HX12	\$445
Princeton Max 12	\$169
Princeton SR-12	\$595
Samsung TTL Amber	\$89
Taxan 420	\$399
Taxan 121 Green	\$125
Taxan 122 Amber	\$134

— COMPUTERS —

Corona PC	Call
IBM PC AT	Call
ITT Computers PC Compatible 256K Dual Drive, Mono, MS/DOS	\$1395
Zenith 158	Call

— PRINTERS —

Citizen	
MSP-10	\$255
MSP-15	\$355
MSP-20	\$329
Daisywriter 2000	\$850

EPSON

Call on all models

JUKI

Juki 6100	\$349
Juki 6300	\$685
Juki Tractors	\$120

NEC

3550	\$989
8850	\$1349
P5 Parallel	Call

OKIDATA

Call on all models

PANASONIC

1091	\$239
1092	\$349
1093	\$429
KXP3151	\$410

SILVER REED

EXP 400P	\$205
EXP 500P	\$279
EXP 550P	\$389
EXP 770P	\$689

STAR MICRONICS

SG10	Call
SG15	\$369

Call for prices on other models

TOSHIBA

1340	Call
P351	Call

TERMS: Prices include 3% cash discount. Add 3% for charge orders. Shipping on most items \$5.00. AZ orders +6% sales tax. Personal checks - allow ten (10) days to clear. Prices subject to change.

Hours 8 A.M. to 5:30 P.M. M.S.T. - Monday thru Friday
Saturday 10:00 A.M. to 3:00 P.M.



Technical & Other Information (602) 246-2222
TOLL-FREE ORDER LINE 1-(800)-421-3135

WAREHOUSE DATA PRODUCTS

2701 West Glendale Ave., Suite 6
Phoenix, AZ 85021

Computer Power Continued from page 15

TRS-80 Model II or Model 16
Vector Graphic
Xerox 820
400 WATT RATING
Larger systems or system with additional peripherals.

Surge/Spike Protector Wars!!!

Before you buy, read the company's spec. sheet. These spec. sheets may be included with the device or you may have to send for them. One company Sutton Designs Inc., maker of ZX-5000 series, shows a competitor's surge/spike protector which has been fried!!! and has been disassembled for inspection with the following charge:

We Dare The Competition To Reveal The Inside Truth! But Don't Worry...If They Won't, We Will.

A number of companies test competitor's products with the best intentions in mind. They want to fry the competitor's product if they can or show defects in design or construction. This is good for the consumer because then questions are raised and facts come out. The only way you can take advantage of this inside information is to get those spec. sheets.

Something New

A number of companies are now offering what they call a

switching command center. This is a convenience box which sits on top of your computer box and allows you to switch any peripheral on or off. They are fancy, they include surge/spike protection and a fuse or circuit breaker. The main advantage over the power strip surge protector is you don't have to bend down or reach under the table to turn things on or off. If you are handicapped or have back pain this is definitely the answer, otherwise the name and all those flashy LED switches may be a cheeky Ego boost. If you are serious, a number of these boxes have additional features which you may find of value, a clock, external mount for a hard disk, space for frequently used floppy disks etc.

The danger doesn't stop at the computer, apparently some modems have been mauled by surges and spikes on the phone line. Not to worry ZX-5000 is ready to protect your modems electrical appetite with a modem surge protector the ZX4CSTN. This is also a feature on the Kensington command center box and on the NETWORX Wiretree +.

Scale of Protection

If you are an advanced computer user with several systems or a business, the greatest economy of scale may be provided by protecting your entire electrical system. The surge protectors provided by Atlantic

Research filter the power entering at your main fuse or circuit box. This would provide all your electrical equipment with a basic protection. In the same vein surge/spike wall outlets with circuit breakers are available, these would replace your common outlets. If building a new home this could be an early solution.

Beyond basic protection for the user who must protect his data from power problems the uninterruptible power supply (UPS) is the best solution. The most common of these devices is constructed of a solid state inverter which converts DC power to AC power.

The DC power source is obtained by rectifying and filtering the utility power line which is then used to drive an inverter as well as provide power for a continuous charging current for a bank of batteries. These range in price and performance from \$250.00 to \$2000.00 for a small system in the 90 - 800 watt range. The UPS provides line voltage regulation and surge and spike protection, and a battery backup system. These systems commonly give the user 5 or 10 minutes to perform an orderly shut down of the system in the event of a brownout or a black-out. This is important to any system which has a hard disk or tape backup unit. The falling price of hard disks will make them common in most systems soon. Those hard disk units which withdraw the heads automatically when power fails will prevent a head crash, but not lost data. This means at least several hours must be spent to check the extent of lost data. In most cases the disk must have a hard/soft reformat done, the recovery time would be 2-4 days. Two complete backups of the hard disk image should be available for a restore. The UPS system or a better grade A.C. line con-

ditioner is the hidden cost of using a hard disk system without trouble. The voltage regulators offered are not UPS, they have no battery backup and many of them cost as much as an UPS system. The regulators can compensate for voltage fluctuations and have the capacity to ride through voltage dips. These units do a better job of regulation of voltage than many cheaper UPS, but I feel the UPS is more valuable protection for your system. The line conditioners offer superior protection to most common surge/spike protectors, they offer the best protection for devices where the contents of memory is not critical.

The additional money you pay for the line conditioner should secure protection from BROWNOUTS! Example, if the voltage falls to between 90V and 100V, you should notice low voltage on its monitor, and you should be able to perform a system shut down if it drops no lower.

The same type of voltage monitoring system mentioned above for surge/spike protectors should be present on a UPS or A.C. line conditioner system. The UPS system is expensive and must be checked on a monthly basis to be sure the battery are fully charged. The battery in the UPS system will eventually have to be changed even if you never have a power problem. A battery pack may need to be changed once every 3-5 years but this varies on conditions and use. If UPS protection cost \$0.25 per day then the cost per year \$912.50.

Plan ahead if your electronics TV, stereo, computer, etc., share the same room, think about protecting everything, and allow some room for growth.

*Note UPS with higher watt rating or multiple battery packs will extend the time

emergency power can be supplied by the UPS. All UPS systems are not created equal. The two main types are standby UPS and continuous-duty UPS. The standby type keeps its battery or batteries charged with a trickle charge, when line voltage drops below a set level a DC to AC inverter is switch on. The batteries supply power to the inverter which supplies 120V line current to the computer. The continuous-duty UPS supplies power to your computer at all times; its batteries are continuously charged by utility power. When power fails the batteries continue to supply power until nearly exhausted, then an attempt to switch back to utility power is made.

The article by William Rynone published in *BYTE* magazine provides a very complete analysis of the Pros and Cons of buying UPS backup power systems. This article is especially helpful because it contains a comparison chart for most of the UPS systems now available. The article also gives plans for a standby light source which can be adapted to work with a 12V high intensity lamp.

Hardware Hackers

Those of us who fit this description have not been forgotten. If you already have several power strips and wish to conserve your resources you can add surge/spike protection for a fraction of the cost of commercially available units. In the reference section of this article there are 4 surge/spike protector projects for the budget minded who know how.

Certainly this is not the electrical world which Nikola Tesla had planned for us with clean freely transmitted and absorbed electricity, without surge or spike protectors. Progress moves in mysterious ways...!

COLOR PRINTER RIBBONS

800-438-7745

You Don't Have to Pay Their Prices!

Immediate Shipment New Cartridges (not reloads) COLORS Available

Guaranteed first quality.

PRICE EACH IN QUANTITY OF
3 6 12

C. Itoh Prowriter 8500/8510 (NEC 8023-A)			
(Apple DMP)	\$5.00	\$4.65	\$4.00
COLOR	5.50	5.15	4.50
Diablo Hytype II Nylon	4.15	3.80	3.50
COLOR	4.65	4.30	4.00
Diablo Hytype II M/S	4.75	4.40	3.75
COLOR Brown or Blue only	5.25	4.90	4.25
Epson MX/FX/RX 70/80	5.10	4.75	3.75
COLOR	5.60	5.25	4.25
Epson MX/FX/RX 100 Cartridge	7.00	6.65	5.50
COLOR	7.50	7.15	6.00
NEC Spinwriter 5500/7700 Nylon	5.60	5.25	4.25
COLOR	6.10	5.75	4.75
Okidata 80/82/92 Nylon (Spool Ribbons) Black	2.80	2.25	1.95
Okidata 80/82/92 Nylon (Spool Ribbons) Color	3.80	2.75	2.45
Radio Shack LP VI, VIII	5.00	4.65	4.00
COLOR	5.50	5.15	4.50
Tally Spirit 80 M/S (Black Only)	7.00	6.65	5.25

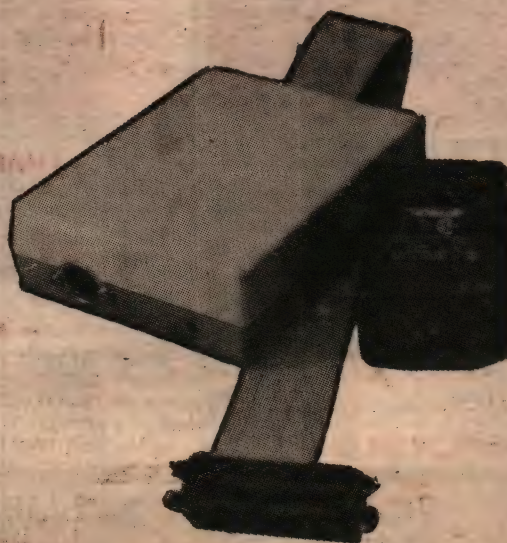
"COLORS" available are RED, BLUE, GREEN, BROWN, PURPLE and YELLOW
Feel free to mix them up.

We have ribbons for most printers. Call for prices and availability.

Prices include delivery (UP ground) in Continental U.S.
Checks & Money Orders accepted (no delay)
VISA/MC add \$1.00 per order
COD add \$2.00 per order
(Georgia residents add 4% sales tax.)

PRINTER RIBBON SUPPLY

P.O. Box 920145 • Norcross, Georgia 30092
Outside Georgia Phone 800-438-7745
Inside Georgia 404-446-1547



Technologic Systems

P.O. Box 44, Raymond, OH 43067
Dealer Inquiries Invited

SERIAL to PARALLEL

Apple IIc, DEC RAINBOW
Epson, IBM
and other serial interface computers.
Starting at
\$79.95

Printer BUFFERS up to 256K characters
Eliminate those printer delays
• Available for Serial or Parallel printers
• X-ON/X-OFF support for DEC, Macintosh, etc.
• Multi-Copy and text formatting capabilities
Starting at
\$99.95

Interface cables available for most computers
Shipping & Handling add \$2.00/COD add \$1.50

Phone 614/890-6960

30 Day Money Back Guarantee

For technical information call after 6:00 PM Eastern time

WHITE HOUSE COMPUTER

P.O. BOX 4025, WILLIAMSPORT, PA 17701

HOURS: Monday thru Friday
9:00 am till 6:00 pm

HOURS: Monday thru Friday
9:00 am till 6:00 pm

TOLL FREE 1-800-351-3442

PA CALL 717-322-7700

PRINTERS

EPSON		OKIDATA	
RX 80.....	209.00	Okimate 10.....	179.95
RX 100.....	369.00	182.....	219.95
JX 80.....	479.00	84.....	640.95
FX 85.....	345.00	192.....	349.95
FX 185.....	499.00	193.....	525.95
LQ 1500 PAR.....	979.00	COMMODORE	
LQ 1500 SER.....	1039.00	MPS 801.....	\$125.00
LX 80.....	222.00	802.....	199.95
Homewriter.....	209.00	803.....	165.95
Comrex 220 Atari.....	199.00	DPS 1101.....	295.95
Comrex 220 Comm.....	199.00	STAR MICRONICS	
LX 90.....	245.00	SG-10.....	214.00
SQ 2000.....	1525.00	SG-15.....	379.00
DX 10 Daisywheel.....	235.00	SD-10.....	\$321.95
DX 20 Daisywheel.....	319.00	SD-15.....	450.00
HS 80 Letterjet.....	359.00	SR-10.....	485.00
ATARI		SR-15.....	585.00
XTM 201.....	99.95	Powertype.....	307.00
XTC 201.....	109.95	LEGEND	
XDM 121.....	209.95	1380.....	269.00
XMM 801.....	169.95	1385.....	305.00
STC 504.....	139.95	1080.....	229.00
STD 121.....	219.95	808.....	\$159.95
SMM 801.....	279.95	PANASONIC	
CITIZEN		1090.....	187.00
MSP 10.....	\$275.00	1091.....	237.00
MSP 15.....	450.00	1092.....	385.00
MSP 20.....	450.00	1093.....	425.00
MSP 25.....	575.00	3151.....	455.00

INTERFACES

ATARI	
850.....	108.95
UPrint/port.....	49.95
UPrint/16k Buffer.....	69.95
UPrint/64k Buffer.....	89.95
MPP1150.....	\$49.95
C-64	
Cardco G.....	39.95
G-Wiz.....	48.95
Grappler CD.....	89.00
Tymac Connection	
/2k Buffer.....	\$58.95
APPLE	
Apple Duplicator GX.....	59.95
Grappler+.....	85.95
Grappler /16k Buffer.....	145.95
PRINTER PAPER	
2500 Sheets/	
Carton Lazor.....	24.95
1000 Sheets Lazor.....	14.95
500 Sheets Lazor.....	9.95
Green Bar 500 Shts.....	10.95
Green Bar 1000 Shts.....	15.95
Mailing Labels 1000 qty.....	9.95

*PRINTER RIBBONS

***DUST COVERS AVAILABLE**

MONITORS

TEKNIKA	
MJ 10 Composite/Separate Video.....	185.95
MJ 22 RGB/Composite/Separate Video.....	269.95
AMDEK	
300G.....	119.00
300A.....	129.00
Color 300.....	185.95
Color 500.....	339.00
Color 600.....	399.00
Color 700.....	469.00
Color 710.....	539.00
310 A.....	145.00
ZENITH	
ZVM 122 Amber.....	82.95
ZVM 123 Green.....	75.95
ZVM 131 RGB Color/Green 40 Columns.....	229.00
ZVM 133 RGB Color/Green 80 Columns.....	389.00
ZVM 130 Color/Green.....	259.00
ZVM 135 RGB Color/Green 80 Columns.....	439.00
XTRON	
Comcolor 1.....	189.00
NEC	
1205.....	95.00
1260.....	139.95
1201.....	139.95
SAKATA	
SC 100.....	179.00

TOLL FREE 1-800-351-3442

DISK DRIVES

ATARI	
Indus GT.....	205.95
1050.....	\$155.95
Happy 1050.....	\$319.95
Happy Enhancer.....	160.95
COMMODORE	
Indus GT.....	\$210.95
MSD Dual.....	459.00
Enhancer 2000.....	189.95
1541.....	195.00
1571.....	249.95
1572.....	375.95
MSD	
Dual MSD-2.....	485.00

DISKETTES

SKC	
Lifetime Warranty	
SS/DD.....	10.95
DS/DD.....	14.95
BONUS	
Lifetime Warranty	
SS/DD.....	9.50
DS/DD.....	13.50
MAXELL	
MD1.....	15.95
MD2.....	20.95

MODEMS

C-64 1064.....	54.95
Tele Learning.....	39.95
Westridge 6420.....	59.95
C-1670.....	54.95
C-1650.....	54.95
C-1660.....	54.95
Volks 12.....	179.95
MPP 1000E.....	69.95
Hayes 300.....	149.95
Hayes 1200.....	385.95
Compuserve Starter	
Kit.....	19.95
Micro Stuffer.....	95.95
1030 with Software.....	\$57.95

INNOVATIVE CONCEPTS

Flip-N-File 10.....	2.50
Flip-N-File 15.....	6.50
Flip-N-File 25/Lock.....	12.50
Flip-N-File 50.....	12.50
Flip-N-File 50/Lock.....	16.50

**Dealers
Inquiries
Invited**

COMPUTERS

ATARI

800 XL.....	89.95
130 XE.....	139.95
520 ST - Monochrome Monitor/Mouse Disk Drive, Software.....	749.00
520 ST - Color RGB Monitor, Mouse Disk Drive, Software.....	870.00

COMMODORE

C-64.....	149.95
C-128.....	275.95

SANYO

MBC 555-1.....	799.95
MBC 555-2.....	899.95

SYMPHONIC VHS VCR/REMOTE

- *14 Day/1 Program Timer
- *105 Channel Cable Ready
- *12 Pre-set Channels
- *Auto Rewind

**ONLY
\$279.00**

SOFTWARE

BRODERBUND

Printshop.....	28.95
Graphics Library 1.....	17.50
Graphics Library 2.....	17.50

SYNAPSE

Synfile.....	32.95
Synalc.....	32.95
Syntrend.....	27.95

ATARI

Proofreader.....	19.95
Codewriter.....	42.95
Filewriter.....	24.95
Reportwriter.....	24.95
Menuwriter.....	24.95
Small Business Inventory.....	17.95
Salesman's Expenses.....	17.95
Accounts Receivable/	
Accounts Payable.....	17.95
The Learning Phone.....	23.95

BATTERIES INCLUDED

Paper Clip/Spell Pack.....	69.95
Paper Clip.....	55.95
Homepack.....	31.95
Consultant.....	59.95
Bus Card II.....	119.95
B.I. 80 Column Card.....	99.95

Lotus 1-2-3.....	299.00
Symphony.....	430.00

**CALL FOR OTHER
BRAND NAME SOFTWARE**

HOURS: Monday thru Friday
9:00 am till 6:00 pm

**VISA and MC
Accepted 4%**



POLICY: No deposit on COD orders. FREE freight on all prepaid cash orders over \$300 in the continental USA. APO & FPO add \$5.00 per hundred. For priority mail add \$8.00 per hundred. PA residents add 6% sales tax. Defective products must have Prior RA number. Schools net 15.

"WHERE PRICES ARE BORN...NOT RAISED!"

RECIPE MANAGER

```

DAJ 10 REM RECIPE MANAGER
KFJ 20 REM COPYRIGHT 1985 JEFF BRENNER
Y6J 30 DIM SP$(36),FILE$(15),FILE2$(15),A$(40),LF$(1),Q$(1),F$(20)
ORJ 40 DIM LINE$(36),DE$(2),CL$(60),MV$(2),S$(1)
J6J 50 FILE$="D:\RECIPE.DAT":FILE2$="D:\RECIPE.PNT"
WYJ 60 AS=CHR$(32):A$(2,2)=CHR$(29):A$(3,3)=CHR$(30):S$=CHR$(32)
KAJ 70 CL$=A$:FOR I=1 TO 19:CL$(LEN(CL$)+1)=A$:NEXT I
EQJ 80 SP$(1)=S$:SP$(36)=S$:SP$(2)=S$:LF$=CHR$(155)
QJJ 90 DE$=CHR$(156):DE$(2,2)=CHR$(157):MV$=CHR$(30):MV$(2,2)=CHR$(31)
LFJ 100 OPEN #1,4,0,"K":OPEN #3,4,0,"E":OPEN #4,9,0,"E":GOSUB 1620
BMJ 110 POKE 53277,3:POKE 53248,48:POKE 53277,0:POKE 53261,255
UIJ 120 POKE 53249,200:POKE 53262,255
DGJ 130 GOTO 1330
NVJ 140 GOSUB 1190:TRAP 610:OPEN #2,12,0,FILE$:SKP=IS
FUJ 150 IF IS=0 THEN NOTE #2,IS,IS:PRINT CHR$(125):GOTO 170
QVJ 160 POINT #2,IS,IS
TQJ 170 OPEN #5,4,0,FILE2$:INPUT #5;X,X,F,F,B
VMJ 180 PRINT CHR$(125):GOSUB 1100:GOSUB 1190
DFJ 190 ST=IS:BT=IS:NOTE #2,IS,IS:INPUT #2;S,B
IGJ 200 FOR I=2 TO 21:INPUT #2;LINE$:POSITION 2,I:PRINT LINE$:NEXT I
XVJ 210 CC=0:POSITION 2,2:A=USR(1664):GOTO 300
RIJ 220 GOSUB 1100:A=USR(1664):GOSUB 1210:POSITION 2,2:POKE 752,0
SNJ 230 POKE 694,0:PRINT "CATEGORY: ";GOSUB 1240:INPUT #3;LINE$
QVJ 240 PRINT CHR$(28):DE$:LINE$
YQJ 250 PRINT "RECIPE NAME: ";GOSUB 1240:INPUT #3;LINE$
PAJ 260 PRINT CHR$(28):DE$:LINE$
LHJ 270 POKE 752,1:IF PEEK(85)>37 AND PEEK(84)=21 THEN POKE 85,37
REJ 280 IF PEEK(85)>37 THEN POKE 85,21:POKE 84,PEEK(84)+1
ASJ 290 IF PEEK(84)>21 THEN POKE 84,21
JEJ 300 SOUND 0,0,0:TRAP 1330
VMJ 310 POKE 694,0:CC=CC+1:POKE 752,0:PRINT MV$:GET #1,K:POKE 752,1
NBJ 320 IF K>31 AND K<60 THEN 580
PEJ 330 IF K>62 AND K<125 THEN 580
RDJ 340 IF EDIT=1 THEN IF K=60 OR K=62 OR K=27 THEN 1020
SNJ 350 IF K=27 THEN 730
EJJ 360 IF K<126 OR PEEK(85)>2 THEN 390
GWJ 370 IF PEEK(84)<3 THEN 300
HAJ 380 POKE 84,PEEK(84)-1:POKE 85,38:PRINT CHR$(K):GOTO 580
PEJ 390 IF K=30 AND PEEK(85)=2 THEN POKE 85,37:GOTO 270
OXJ 400 IF K=31 AND PEEK(85)=37 THEN POKE 85,21:GOTO 270
CWJ 410 IF K=127 THEN PRINT CHR$(K):IF PEEK(85)>37 THEN 410
EEJ 420 IF PEEK(84)>21 THEN POKE 84,21:PRINT MV$:
UKJ 430 IF K<255 THEN 460
FXJ 440 PRINT CHR$(K):GOSUB 1200:POSITION 38,2:POKE 752,1:PRINT CL$
MDJ 450 POSITION X,Y:POKE 752,0:GOTO 270
SOJ 460 IF K=62 THEN 730
UJJ 470 IF K=125 THEN PRINT CHR$(K):GOTO 220
WVJ 480 IF K<156 THEN 510
SEJ 490 GOSUB 1200:PRINT CHR$(K):POSITION 2,21:PRINT CHR$(157)
AXJ 500 POKE 84,Y:GOTO 270
WSJ 510 IF K<157 THEN 530
BYJ 520 GOSUB 1200:POSITION 2,21:PRINT CHR$(156):POKE 84,Y:GOTO 580
OYJ 530 IF K=28 AND PEEK(84)=2 THEN POKE 84,21:GOTO 270
PAJ 540 IF K=29 AND PEEK(84)=21 THEN POKE 84,21:GOTO 270
FTJ 550 IF K=155 AND PEEK(84)=21 THEN 270
PTJ 560 IF K>27 AND K<32 OR K=155 OR K=126 OR K=254 OR K=61 THEN 580
BOJ 570 GOTO 300
JGJ 580 IF PEEK(85)=32 THEN SOUND 0,0,2,14
NTJ 590 PRINT CHR$(K):GOTO 270
JBJ 600 CLOSE #2:IF PEEK(195)=170 THEN 660
NYJ 610 IF EDIT=1 AND PEEK(195)=170 THEN 710
GWJ 620 POSITION 2,22:PRINT DE$:"ERROR #":PEEK(195):EDIT=0:GOSUB 1110
WQJ 630 POKE 752,1:PRINT
NRJ 640 IF PEEK(764)<28 THEN 640
DNJ 650 GOTO 1330
INJ 660 OPEN #2,0,0,FILE$:CLOSE #2:OPEN #2,0,0,FILE2$
FOJ 670 PRINT #2;"0":LF$:"0":LF$:CLOSE #2
RUJ 680 GOSUB 1190:TRAP 600:OPEN #2,9,0,FILE$
APJ 690 OPEN #5,4,0,FILE2$:INPUT #5;S,B:CLOSE #5
OGJ 700 PRINT CHR$(125):GOTO 220
OUJ 710 POSITION 2,22:PRINT DE$;S;"NO RECIPE FILE ON DISK-ADD RECIPES"

```

Applying the Atari
Continued from page 180

to enter the RECIPE NAME. Be sure to use capital letters only when entering the CATEGORY and NAME so that you will be able to search for a particular category or recipe.

Next, you get to type in your recipe. You can type anywhere you like on the recipe screen. A gentle beep will remind you

when you near the end of the line so you can press RETURN. You can put "Ingredients" and "Instructions" headings in wherever you want. All the Atari's editing keys work so you can quickly and accurately create your recipe "card." The screen space is ample for most recipes. For extra long ingredients' lists, you can shorten the instructions, or you can even put the same recipe on two or more separate "cards" — i.e. SUPERBURGER PART

1 and SUPERBURGER PART 2. Part 1 could contain the ingredients, and Part 2 could contain the instructions. In this way, your recipe space is virtually unlimited.

The only restriction you have when entering recipes is that quantities should always be at the leftmost side of the screen and in parentheses, such as: (2) pounds beef. This will allow the CALCULATE function (to be implemented next month) to change these quantities when multiplying or dividing recipes. To use fractions, use the slash (i.e. for one-half, type 1/2, not .5). For a value such as one and three quarters, separate the whole number from the fraction with a space or other character, as in the following formats: (3 1/4), (3-1/4), (3+1/4), (3&1/4), etc.

Press ">" to enter the next recipe, or "ESC" when you've finished entering recipes.

The BROWSE/EDIT option lets you look through your computer recipe file by pressing the "▲" and ">" keys to move backward and forward, respectively. You can also change any recipe as you move through your file. All changes are recorded on the disk. If you find a recipe that you want to print, press the ESC key for the menu. Then press "P" for the PRINT option and the recipe is neatly printed with a centered title. If you again select the BROWSE option, you will be able to browse from where you left off. Happy cooking!

Next Month

We'll get into more details on *Recipe Manager*, and enter the next part of the program. We'll also have some holiday programs.

Readers' questions, comments and original contributions are welcome. Please enclose a self-addressed, stamped envelope (SASE) for a personal reply.

A diskette of all programs listed in this month's column is available from the author for \$7.00, postpaid. Please specify your disk drive model.

Program Perfect is a utility used to check for typing errors while entering programs from this column. Readers may send a SASE for a listing or \$5.00 for diskette of this program.

Address all correspondence to:

Jeff Brenner
"Applying the Atari 11/85"
c/o Computer Shopper
P.O. Box F
Titusville, FL 32781-9990 ●

```

(continued)
UDJ 720 EDIT=0:GOSUB 1110:GOTO 630
ARJ 730 POKE 752,0:GOSUB 1190:IF EDIT=0 THEN IF K=27 AND CC<2 THEN 820
DJJ 740 IF EDIT=1 THEN POINT #2,IS,IS
LRJ 750 NOTE #2,S1,B1:PRINT #2;S;LF$:B:POSITION 2,2
XKJ 760 FOR I=2 TO 21:LINE$=SP$:POKE 84,I:INPUT #4;LINE$
XNJ 770 IF LEN(LINE$)<36 THEN LINE$(36)=CHR$(32)
LCJ 780 PRINT #2;LINE$:NEXT I
HQJ 790 IF EDIT=1 THEN RETURN
EQJ 800 S=B1:B=B1
XEJ 810 IF EDIT=0 AND K=62 THEN PRINT CHR$(125):GOSUB 1100:GOTO 220
NBJ 820 CLOSE #5:OPEN #5,B,0,FILE2$:PRINT #5;S;LF$:B:NOTE #2,S,B
UEJ 830 PRINT #5;S;LF$:B:GOTO 1330
VNI 840 GOSUB 1110:POSITION 2,22:A$="RETURN":GOSUB 1080:POKE 752,1
CCJ 850 TRAP 990
SFJ 860 PRINT DE$;SP$(35);"PRESS":CHR$(32);A$;CHR$(32);"TO PRINT THE RECIPE"
PIJ 870 GET #1,K:IF K<27 AND K>155 THEN 870
UJJ 880 POKE 752,0:IF K=27 THEN 1330
QHJ 890 OPEN #7,0,0,"P:"
VYJ 900 POKE 84,2:INPUT #4;LINE$:PRINT #7;LINE$:PRINT #7
PMJ 910 POKE 84,3:INPUT #4;LINE$
MFJ 920 I=LEN(LINE$)
VOJ 930 IF I>2 AND LINE$(I)=CHR$(32) THEN LINE$=LINE$(I,1-1):GOTO 920
YSJ 940 PRINT #7;SP$(1,(36-I)/2);LINE$
OEJ 950 PRINT #7;SP$(1,(36-I)/2);FOR I=1 TO LEN(LINE$):PRINT #7;"-";NEXT I
CSJ 960 PRINT #7
ORJ 970 FOR I=4 TO 21:POSITION 2,I:INPUT #4;LINE$:PRINT #7;LINE$:NEXT I
GNJ 980 PRINT #7;LF$:CLOSE #7:GOTO 1330
ICJ 990 CLOSE #7:IF PEEK(195)<5 THEN 620
SKJ 1000 POSITION 2,22:PRINT DE$;S;"NO RECIPE ON SCREEN-BROWSE OR FIND"
VSJ 1010 EDIT=0:GOSUB 1110:GOTO 630
LIJ 1020 IF CC>1 THEN GOSUB 730
VYJ 1030 IF K=27 THEN 1330
IKJ 1040 IF B>0 AND K=60 THEN GOSUB 1190:POINT #2,S,B:GOTO 180
HDJ 1050 IF K=60 THEN A$="FIRST RECIPE IN FILE":I=1:GOSUB 1200:GOTO 210
GFJ 1060 NOTE #2,S1,B1:IF S1<FB OR B1<FB THEN 180
XZJ 1070 A$="LAST RECIPE IN FILE":I=1:GOSUB 1200:GOTO 210
JOJ 1080 FOR I=1 TO LEN(A$):A$(I,1)=CHR$(ASC(A$(I,1))+128):NEXT I
CWJ 1090 RETURN
PKJ 1100 CC=0:A$="RECIPE MANAGER":GOSUB 1080:POSITION 2,0:PRINT SP$(26);A$
MNJ 1110 POSITION 2,23:A$="ESC":GOSUB 1080
TKJ 1120 PRINT SP$(28);"PRESS":CHR$(32);A$;CHR$(32);"FOR MENU":POSITION 2,22
DGJ 1130 IF EDIT=0 THEN 1160
SKJ 1140 A$="":GOSUB 1080:PRINT DE$;A$;S;"MOVES BACKWARD":S$;A$
FNJ 1150 POKE 85,21:A$=">":GOSUB 1080:PRINT A$;S;"MOVES FORWARD":S$;A$
QOJ 1160 POSITION 2,1:PRINT SP$
JPJ 1170 POSITION 2,1:I=LEN(F$):IF I/2>INT(I/2) THEN F$(I+1)=S$
UKJ 1180 PRINT SP$(1,(36-LEN(F$))/2);F$:POKE 752,0:RETURN
MRJ 1190 POKE 54286,64:POKE 710,148:RETURN
FRJ 1200 X=PEEK(85):Y=PEEK(84):RETURN
OAJ 1210 IF EDIT=1 THEN RETURN
NHJ 1220 POSITION 2,22:PRINT DE$;SP$(33);"PRESS > TO ENTER NEXT RECIPE"
CSJ 1230 RETURN
LBJ 1240 POKE 764,255
BZJ 1250 I=PEEK(764):IF I=255 THEN 1250
VHJ 1260 IF I=28 THEN POP:GOTO 730
CWJ 1270 RETURN
LBJ 1280 IF I=1 THEN GOSUB 1080
ULJ 1290 X=PEEK(85):Y=PEEK(84):POSITION 2,22
AWJ 1300 I=LEN(A$):IF I/2>INT(I/2) THEN A$(I+1)=S$
IJJ 1310 PRINT DE$;SP$(1,(36-LEN(A$))/2);A$
NMJ 1320 POSITION X,Y:RETURN
TWJ 1330 EDIT=0:GOSUB 1190:CLOSE #2:CLOSE #5:F$="MENU":GOSUB 1100:A=USR(1664)
YFJ 1340 POKE 752,0:POSITION 2,22:RESTORE 1350
SNJ 1350 DATA ADD,BROWSE/EDIT,FIND,PRINT,CALCULATE
RCJ 1360 FOR I=1 TO 5:READ A$:A$(I,1)=CHR$(ASC(A$(I,1))+128)
TWJ 1370 PRINT A$;CHR$(32);NEXT I
UDJ 1380 POSITION 2,23:PRINT DE$;"SELECT: ";
IZJ 1390 POKE 694,0:POKE 702,64
KDJ 1400 GET #1,N:IF N<65 OR N>90 THEN 1400
HPJ 1410 Q$=CHR$(N):PRINT Q$
BUJ 1420 IF Q$="A" THEN F$="ADD RECIPES":GOTO 680
VGJ 1430 IF Q$="B" THEN F$="BROWSE/EDIT":EDIT=1:GOTO 140
ECJ 1440 IF Q$="F" THEN F$="FIND CATEGORY/RECIPE":GOTO 1730
GTJ 1450 IF Q$="P" THEN F$="PRINT RECIPE":GOTO 840
SBJ 1460 IF Q$="C" THEN F$="CALCULATE RECIPE":GOTO 1750
FKJ 1470 GOTO 1330
RBJ 1480 DATA 104,173,48,2,133,204,173
NKJ 1490 DATA 49,2,133,205,160,3,177
QWJ 1500 DATA 204,9,128,145,204,160,25
TFJ 1510 DATA 177,204,9,128,145,204,173
GRJ 1520 DATA 0,2,133,204,173,1,2
PDJ 1530 DATA 133,205,169,0,141,198,2
QYJ 1540 DATA 141,14,212,169,196,141,0
HHJ 1550 DATA 2,169,6,141,1,2,162
USJ 1560 DATA 192,173,11,212,201,128,208
ROJ 1570 DATA 249,142,14,212,96,72,173
QJJ 1580 DATA 11,212,105,1,106,106,106
UMJ 1590 DATA 106,144,245,141,10,212,141
PFJ 1600 DATA 10,212,173,198,2,73,148
MPJ 1610 DATA 141,198,2,141,24,208,104,64
IJJ 1620 POKE 559,0:DL=PEEK(560)+256:PEEK(561):FOR I=DL TO DL+8
NKJ 1630 POKE I-1,PEEK(I):NEXT I:POKE DL+8,0:DL=DL-1
QOJ 1640 H=INT(DL/256):L=DL-H:256:POKE 560,L:POKE 561,H
USJ 1650 POKE DL+31,L:POKE DL+32,H:POKE 559,34
PJJ 1660 RESTORE 1480:PRINT "STAND BY..."
GZJ 1670 POKE 752,1:FOR I=1 TO 99:READ N
RRJ 1680 POSITION 13,0:PRINT 100-I;CHR$(32);
PXJ 1690 POKE 1663+1,N:TOT=TOT+1:N:NEXT I
MYJ 1700 IF TOT<16577 THEN PRINT "ERROR - CHECK DATA LINES 2000-2130":END
VHJ 1710 POKE 16,64:POKE 53774,64:POKE 752,0
FSJ 1720 A=USR(1664):RETURN
GFJ 1730 POSITION 2,22:PRINT DE$;S;"THAT COMMAND IS NOT AVAILABLE YET"
EJJ 1740 GOSUB 1110:GOTO 630
GFJ 1750 GOTO 1730

```

ATARI HARDWARE / SOFTWARE

810 Disk Drives	\$265 (7)	TEXAS INSTRUMENTS TI99/4 HARDWARE	
810 Disk Drive Kits	\$240 (7)	TI99 Replacement Keyboard	\$ 7 (3)
810 Happy Enhancement	\$185 (4)	TI99 Power Supply Board	\$ 7 (2)
1050 Happy Enhancement	\$185 (4)	TI99 Power Adapter	\$12 (3)
810 Analog Upgrade Kit	\$ 37 (3)	TI99 Video Modulator Unit	\$12 (3)
850 Interface Module	\$125 (7)	TI99 Integrated Circuit Chips	
Atari 800 Computer Kits		TMS 9900 — \$13 (1)	TMS 9901 — \$ 5 (1)
48K Electronics	\$100 (7)	TMS 9904 — \$ 5 (1)	TMS 9918 — \$ 9 (1)
Atari 400 Computer Kit	\$ 47 (5)	Complete set of all four: \$27 (3)	
800 OS 10K ROM 'B' Board	\$ 17 (2)	TIMEX/SINCLAIR TS-1000 CASSETTES	
CPU 'GTIA' Board	\$ 18 (2)	Statistics, Algebra 1, Geometry 1, Money	
16K Memory Board	\$ 19 (2)	Analyzer 1, Mixed Game Bag 2, Pwr. Pack 1 — \$ 3 (1) each	
400/800/810/850 Power Adapter	\$ 15 (3)	Stock Analyzer, College Cost Analyzer, IRA	
I/O Data Cable, 6'	\$ 12 (2)	Planner, Home Improvement Planner,	
13 pin I/O Plug Kit (cable end)	\$ 3 (1)	Checkbook Manager, Coupon Manager, The	
13 pin I/O Jack (Port)	\$ 3 (1)	Organizer — \$ 4 (1) each	
Atari Joystick (standard)	\$ 5 (2)	MORE TITLES AVAILABLE/CALL NOW!	
Atari Paddles (set)	\$ 8 (2)	SPECIAL CLOSE-OUT: PRINTER, TIMEX	
All types of other boards and parts are available! Call now!!		TS-1000 16-Column Printer, uses plain	
Atari Microsoft Basic II		paper... NO INTERFACE REQUIRED. MADE	
Cartridge w/manual	\$ 27 (3)	IN U.S.A. — \$25 (4) Limited Quantities	
Atari Pilot, Cart. w/manual	\$ 22 (3)		
Atari Basic Cartridge Kit	\$ 15 (3)		
Atari Assembler/Editor Cart. Kit	\$ 15 (3)		

CALL OR WRITE FOR FREE CATALOG!!!

Ordering Information: All boards listed are complete with all parts and are fully guaranteed. UPS shipping charges are shown in brackets next to the price. Shipping charges must be included with all orders. Orders may be placed by phone using your VISA or MasterCard, or you may mail your order in with a check or money order. Hurry, some supplies are limited.

CENTURIAN ENTERPRISES (805) 544-6616

Post Office Box 3233, San Luis Obispo, CA 93403-3233

Sales Office: 890 Monterey Street, Suite B, SLO, CA 93401

I Own an Atari

Continued from page 179

have to select your own combination.

Copying Disks

I learned how to copy a disk which is done by placing the arrow on the top (A) floppy and while holding down the floppy. Prompts help you through the copying process from then on. In learning, I inadvertently acquired a copy of the Atari Demonstration disk. Well naturally, I wasn't going to erase it so I ran some of the programs to see the capability of my new computer in COLOR! I was really impressed.

Atari Color Demonstration

Figure 4 presents the directory of the demo disk in ICON format. The first thing I did after dumping this screen was to OPEN the PIERAM.PRG program by going through FLOPPY A, FILE, OPEN and double-clicking with the arrow on the program line. The busy-bee appeared and a pie chart of red, yellow, green, blue, and lavender. Then!!! the isometric pie sectors began to systematically separate presenting all of the sectors with proper shading. I was really impressed. All I did to switch was to press the Space-bar and back to the disk directory. I next double-clicked the SLIDE.PRG. This presented a sequence of fantastic color drawings of a map, a snake, a bee face, a horn, an explorer and a tran. The colors, resolution, and general drawings outstanding. I did not try to screen dump the slides because my black and white printer would not have done these graphic justice. This demo disk really wetted my appetite for getting into the programming effort. See Fig. 4 page 179

Development Package

The development package I received was made up with five disks and five inches of paper, some of it double sided. The disks contain compilers, linkers, utilities, Resource Construction Set, and a text editor. I am getting a listing of the latter at this time so I cannot comment on it's effectiveness at this time. As you would gather, I am overwhelmed with software at this point. I have to go through the information one item at a time and try to digest the information.

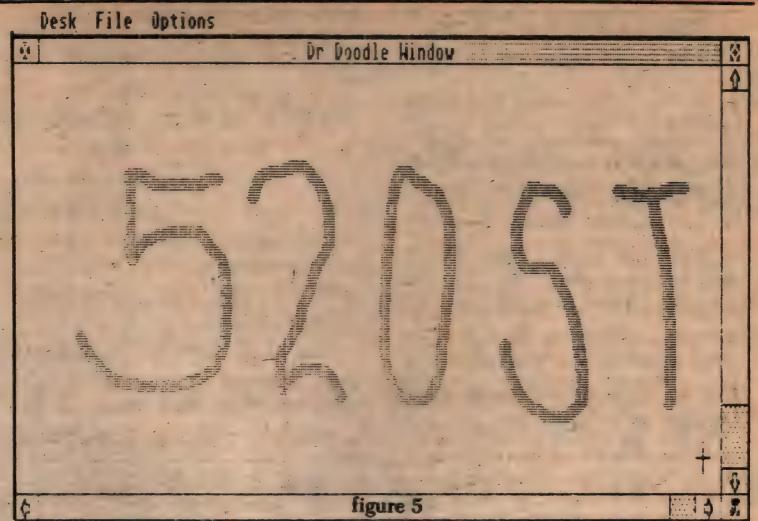
I elected to start off simple. There is a program called "Doodle" which I loaded into memory by: arrow to floppy with one-click, then to FILE, OPEN and moving the arrow to DODDLE.PRG followed by a double-click. The program allows you to sketch us-

ing several colors and brush widths, one at a time. Figure 5 shows my first effort followed by a CONTROL,HELP screen dump. It's not a sophisticated paint program but it does do a little bit towards seeing the potential of the 520ST.

The next thing I took a quick look at was the Resource Construction Set. The best way to describe the function of this is that it is used to build all of the windows used in the GEM system. When starting it up, five resource partboxes are shown; the wide open (?) tree, the free tree, the menu, the

dialog, and the alert. The ICONs for these and the setup for the DOODLE program are seen as Figure 6. Figure 7 presents the partbox for the alert window. See Figs 6, 7 & 8 page 190

Now I got serious about building a window even though I didn't know where I was going to use it. I pulled in the free-tree partbox as can be seen on top of Figure 8. By placing the arrow on the desired ICON, holding the Mouse button down, dragging the outline to the desired location and releasing the button a



Continued on page 190

Precision Data Products
Complete Line of Quality Supplies for Your Computer



TOLL FREE ORDER LINE
800-258-0028
FOR INFORMATION CALL
616-452-3457

3M DATA RECORDING PRODUCTS

Computer Tape

NEW TAPE BACKED BY 3M'S UNSURPASSED WARRANTY

Black Watch® Unique substrate durability extends tape life... reduces data loss. Protects itself and your valuable data against physical damage.
777 Series High life, high reliability tape. Tape is completely compatible at all densities, including 6250 BPI. 100% tested.

Product	Black Watch® (700 Series) Per Reel	(777 Series) Per Reel
600' w/seals	\$ 8.35	\$ 7.95
1200' w/seals	\$11.25	\$10.15
2400' w/seals	\$14.25	\$13.50
3600' w/seals	\$20.95	.....
2400' w/EZ II	\$14.55	\$14.25
3600' w/EZ II	\$21.75	.....

Minimum Quantity: 10 Reels/Case
Shipping F.O.B. Grand Rapids, MI

3M Data Cartridges

	Per Cartridge		Per Cartridge
DC 100 A	\$12.25	DC 600 A	\$22.60
DC 300 A	\$17.20	DC 600 HC	\$24.75
DC 300 XL	\$19.60	DC 615 HC	\$17.95
DC 300 XL/P	\$21.75	DC 1000	\$14.35

Shipping and handling \$3.00/5 cartridges.



3M Diskettes

DURABLE, CERTIFIED 100% ERROR FREE LIFETIME WARRANTY

5 1/4" Diskettes	3 1/2" Diskettes	8" Diskettes
SSDDRH	SS Micro	SSSD
DSDDRH	DS Micro	SSDD
DSHD 96TPI		DSDD

Sold 10/Box



"APPLES TO APPLES"
We'll **BEAT** any price on these products advertised in this issue. [Guaranteed same day shipping of in-stock items on orders placed by 2:00 p.m. E.S.T. NEED IT FAST? Ask about 1-DAY AND 2-DAY DELIVERY SERVICE (available for a reasonable up-charge).]
MINIMUM ORDER: \$25.00

Quantities less than 50, add 10%.
Shipping and handling \$4.00 per 100 diskettes.
Reduced shipping charge for larger quantities.
C.O.D. add \$3.00. Certified check or money order.
MI residents add 4% sales tax.
Prices subject to change without notice.



Precision Data Products
P.O. Box 8367, Grand Rapids, MI 49508
(616) 452-3457 • Michigan 1-800-632-2468
Outside Michigan 1-800-258-0028



C.O.D.

Corresponding CoCo Continued from page 102

as individual programs. The "PARAM" line at the beginning of each procedure will indicate what parameter information the program needs to function properly. As an example, let's say we want to print several letterheads in the dot matrix Gemini, so they may be used later in the letter quality PowerType. Letter head could be run as follows:

```
OS9> letter_head ("pica", "", "gemini", "/p", 4, false);

      display c >/p

... or for an envelop:
OS9> envelope ("gemini", "/pl"); display c >/p
```

CoCoCorr, could easily be used with other programs, as long as the parameters listed in the PARAM line are passed for use by the called procedure.

When using parameter passing, make sure that those passed from the calling program are in the same order as those in the called procedures PARAM line.

All of these procedures must be "packed" individually, if you want to call them as individual programs using para-

fling. We've included the "escape" codes, as well, since many of you may already have memorized some of them while learning to program in Microsoft Color Basic. The Display command uses these same codes, but the values must be converted to hexadecimal.

It's really not necessary to use a fancy screen editor for writing your letters and/or manuscripts. The Infile utility will allow you to enter text files that will be compatible with both the manuscript and letter mode format. Just type them in using a 64 character line length, single line spacing, and double lines between paragraphs. Any typographical errors can be removed later using the "edit" line editor.

The 64 character line length

must be adhered to! Going one character over to prevent breaking a word is okay, but try to keep that right margin neat. Remember, that's two full lines of input on the standard screen, then <enter> the line. Of course, if you're using a hi-res graphic screen, things will be made to order in the 64x19 mode.

With PBJ's 80-column Word-Pak, you may want to put a small grease pencil mark on the screen, or something else that will rub off easily, to act as an end of line marker.

The only exceptions to the above 64 character format are when using elite, condensed, or proportional characters. Here you'll have to provide a 72 character line length. I would not recommend submitting material to any publication in

type smaller than elite (12 characters per inch).

Using the proportional spacing can be neat, too (Gemini 10 and PowerType only). Here you'll have to provide a value for the number of spaces between each character. A single space isn't practical, but two make some nice copy. Remember your line length though, as the input on your screen isn't proportional. You may want to go back later, and add some spaces between words to even things up. Here's where a good screen editor like PBJ's Chbreeze would come in handy.

Once you have the "body" of your copy saved to a file on disk, these programs will do

Continued on page 196

Star Micronics PowerType DIP SWITCH #2 COFIGURATION DETAILS

switch	setting	results
1	on	2 stop bits
1	off	1 stop bit
2	on	7 data bits
2	off	8 data bits
3	on	parity check
3	off	no parity
6	on	odd parity
6	off	even parity
10	n.u.	not used

HANDSHAKE PROTOCOLS - switches 4 and 5

4 off	5 off	serial busy; 1 byte
4 on	5 off	serial busy; 1 block
4 off	5 on	ACK mode
4 on	5 on	Xon/Xoff mode

BAUD RATE SELECTION -- switches 7, 8, 9

7	8	9	rate	poke 150, (x)
off	off	off	150	(202) *
off	off	on	300	(180)
off	on	off	600	(87)
off	on	on	1200	(41)
on	off	off	2400	(18)
on	off	on	4800	(7)
on	on	off	9600	(1)
on	on	on	19,200	(RS-232 only)

(*) poke 149, 1 too

In the first sample "pica" is sent to indicate the type parameter, a nul ("") for the name, "gemini" for the brand, "/p" for the device, 4 for the path, and false for the form. The second is a bit less complicated, as it only passes the parameters for the brand and device. Both are followed by a second command, which formfeeds to either the next page, or ejects the envelope from the printer.

Basic09's ability to pass parameters from one program to another is one of its most powerful features. The CoCoCorr program could just as well have been written using GOTOs and GOSUBs, but you would lose the value of the individual utilities. All of the accompanying procedures, save

meters. However, if you want to use the CoCoCorr calling procedure and have the parameters set for you, it's possible to pack the entire program. You will need to have at least 10K of memory while in Basic09, so when you call it, enter "Basic09 #12k." Then load each procedure into Basic09, their order is irrelevant, as long as CoCoCorr is first in line. Then enter "pack*." This will pack all the programs in your execution directory under the CoCoCorr utility. Thus, they will be loaded and ran as needed by the calling program.

Scanning the options list in Table One will give you some idea of just what can be programmed into Star printers for some fairly fancy word shuf-

(*) Gemini	(**) PowerType	(***) both	(n.u.) not used
Printer controls	escape	display	printpath
** bold-strike ON "G"		1B 47	CHR\$(27);CHR\$(71)
** bold-strike OFF "H"		1B 48	CHR\$(27);CHR\$(72)
*** carriage return n.u.		0D	CHR\$(13)
* condensed ON n.u.		0F	CHR\$(14)
* condensed OFF n.u.		12	CHR\$(18)
* double-strike ON "G"		1B 47	CHR\$(27);CHR\$(71)
* double-strike OFF "H"		1B 48	CHR\$(27);CHR\$(72)
* double-width ON "W" 1		1B 57 1	CHR\$(27);CHR\$(87);CHR\$(1)
* double-width OFF "W" 0		1B 57 0	CHR\$(27);CHR\$(87);CHR\$(0)
* emphasized ON "E"		1B 45	CHR\$(27);CHR\$(69)
* emphasized OFF "F"		1B 46	CHR\$(27);CHR\$(70)
*** first line (set) "R" n		1B 52 n	CHR\$(27);CHR\$(82);CHR\$(n)
* form length n inches "C" 0 n		1B 43 n 30	CHR\$(27);CHR\$(67);CHR\$(n);CHR\$(48)
* form length n lines "C" n		1B 43 n	CHR\$(27);CHR\$(67);CHR\$(n);CHR\$(0);CHR\$(n)
*** horizontal tab (set) "D" n1,n2...0		1b 44 n n 00	CHR\$(27);CHR\$(68);CHR\$(n1);...;CHR\$(0)
* italics ON "4"		1B 34	CHR\$(27);CHR\$(52)
* italics OFF "5"		1B 35	CHR\$(27);CHR\$(53)
*** left margin "M" n		1B 40 n	CHR\$(27);CHR\$(77);CHR\$(n)
*** line feed n.u.		0A	CHR\$(10)
* line feed depth "m"		1B m	CHR\$(27);CHR\$(m)
* 6 lines/inch "m"		m = 32	m = CHR\$(50)
* 8 lines/inch "m"		m = 30	m = CHR\$(48)
* 10 lin/in (aprx.) "m"		m = 31	m = CHR\$(49)
* n/72-in. "A" n		1B 41 n	CHR\$(27);CHR\$(65);CHR\$(n)
* n/144 in. "3" n		1B 33 n	CHR\$(27);CHR\$(51);CHR\$(n)
* n/144 once only "J" n		1B 4A n	CHR\$(27);CHR\$(74);CHR\$(n)
** 3 lines/inch "3"		1B 33	CHR\$(27);CHR\$(51)
** 4 lines/inch "2"		1B 32	CHR\$(27);CHR\$(50)
** 6 lines/inch "1"		1B 31	CHR\$(27);CHR\$(49)
** 8 lines/inch "0"		1B 30	CHR\$(27);CHR\$(48)
** (n-1)/48 inch RS n		1B 1E n	CHR\$(27);CHR\$(30);CHR\$(n)
** (n-1)/120 inch "US" n		1B 20	CHR\$(27);CHR\$(32);CHR\$(n)
*** print pitch "B"		1B 42 n	CHR\$(27);CHR\$(66);CHR\$(n)
*** condensed 17-cpi (**15)		n = 3	columns = 132 (**120)
*** elite 12-cpi		n = 2	columns = 96
*** pica 10-cpi		n = 1	columns = 80
* proportional "Z"		1B 5A n	CHR\$(27);CHR\$(90);CHR\$(n)
** proportional ON "I"		1B 49	CHR\$(27);CHR\$(73)
** proportional OFF "J"		1B 48	CHR\$(27);CHR\$(74)
*** right margin "O" n		1B 51 n	CHR\$(27);CHR\$(81);CHR\$(n)
** shadow ON "E"		1B 45	CHR\$(27);CHR\$(69)
** shadow OFF "F"		1B 46	CHR\$(27);CHR\$(70)
*** skip over perf. "N" n		1B 4e n	CHR\$(27);CHR\$(78);CHR\$(n)
* slashed zero ON "V" 1		1B 56 1	CHR\$(27);CHR\$(86);CHR\$(1)
* slashed zero OFF "V" 0		1B 56 0	CHR\$(27);CHR\$(86);CHR\$(0)
* standard font "5"		1B 35	CHR\$(27);CHR\$(53)
*** subscript ON "S" 1		1B 53 1	CHR\$(27);CHR\$(83);CHR\$(1)
*** subscript OFF "T" 0		1B 54	CHR\$(27);CHR\$(84)
*** superscript ON "S" 0		1B 53 0	CHR\$(27);CHR\$(83);CHR\$(0)
*** superscript OFF "T" 1		1B 54	CHR\$(27);CHR\$(84)
* tab 10 spaces n.u.		09	CHR\$(9)
* tab 6 lines n.u.		0B	CHR\$(11)
* top of form n.u.		0C	CHR\$(12)
*** underline ON "U" 1		1B 2D 1	CHR\$(27);CHR\$(45);CHR\$(1)
*** underline OFF "U" 0		1B 2D 0	CHR\$(27);CHR\$(45);CHR\$(0)
*** uni-direction ON "U" 1		1B 55 1	CHR\$(27);CHR\$(85);CHR\$(1)
*** uni-direction OFF "U" 0		1B 55 0	CHR\$(27);CHR\$(85);CHR\$(0)
*** vertical tabs "P" n1,n2...0		1b 50 n n 00	CHR\$(27);CHR\$(80);CHR\$(n1);...;CHR\$(0)

TABLE ONE

Procedure CoCo
Continued on page 188

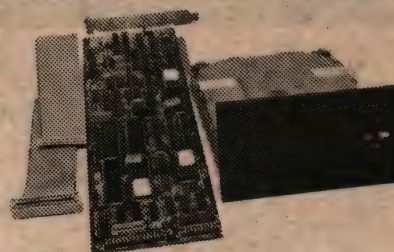


SUPER PC/XT SYSTEM

Our Price **\$1095.00**

- Includes:** One Year Warranty
- With 256K on Board
 - CPU: 16 Bit 8088 with Optional 8087 Coprocessor
 - Expansion Slots: All 8 are IBM PC/XT Compatible
 - Two Half Height, 360K 5 1/4" DS/DD 48 tpi Floppy Disk Drives and Controller
 - Hi-resolution Monochrome Monitor with Color Card
 - Multifunction Keyboard
 - Runs PC-DOS/MS-DOS and CP/M-86
 - 135 Watt Power Supply

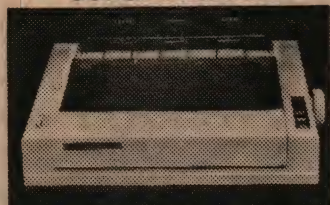
HARD DISK SYSTEM



- High Reliability • Controller Included
- Convert PC to XT Economically
- Fits into One Disk Drive Slot
- by RODIME High Performance

10Mb (Fixed)	\$495
20Mb (Fixed)	\$595
33Mb (Fixed)	\$1295
10Mb (Removeable)	\$1395

SUPER PRINTER



- 120 cps Dot Matrix w/Letter Quality Mode
- Friction & Tractor Feed
- Panasonic 1091

\$259.00

BASIC SYSTEM UNIT - Only \$695.00



- Features:**
- IBM PC/XT Compatibility
 - With 256K Memory On Board
 - 8 IBM Compatible Expansion Slots
 - Multifunction on-KeyBoard
 - Keyboard Cable
 - 135 Watt Power Supply
 - Factory Warranty

SUPER PC IXT SYSTEM

- Includes All Features of Our Super PC/XT Plus More • 4 Layer, 640K Motherboard
- 155 Watt Power Supply
 - AT Style Keyboard

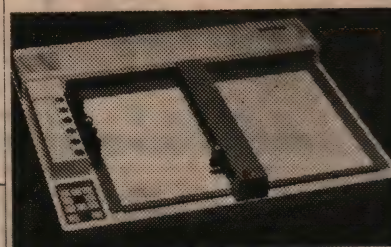
\$1150.00

20Mb Tape Back-up System

- 20Mb High Speed Streamer Back-up Tape
- Qic-02 Type • Back-up File by File or Image
- Conventional Size Digital Cassette
- Tape Back-up Controller and Software Included
- Menu Driven
- One Year Warranty

\$995.00

TAXAN 710S AUTOMATIC PLOTTER



- Maximum Pen Speed 10 inches/sec in axial direction
- 6 Automatic Pen Changing
- 6 Color Fiber Pens Provided (also uses most types of ceramic pens)
- 100% HP-GL Command Compatible
- 100% Pin Compatible Serial Port with HP-7475 Plotter
- Uses up to 11"x17" Paper

\$795.00

IBM-AT Case ★ IBM-AT Compatible Motherboard ★ IBM-AT Power Supply

Call American Digital Discount Association for More Information and Prices

SUPER 384

Multifunction Card

- Parallel Port & Serial Port
- Memory Expansion from 0K to 384K (see below)
- Battery Back-up Clock
- Game Port • RAM Disk
- Spooler (Print)

\$179.00

w/384K FREE Memory

DISK PLUS I/O



- One Card Consists of:
Floppy Drive Controller
Parallel & Serial Ports
- Consumes Only One Slot of Your IBM PC/XT or Compatible Computer

\$129.00

HARD DISK CONTROLLER



- Hard Disk Controller for 5, 10, 20 and 33 Meg Hard Disks
- IBM PC/XT Hard Disk Controller Compatible

\$199.00

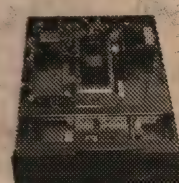
1/2 HEIGHT - 360K DRIVE For PC/AT



- Includes Bracket to Fit PC/AT
- Grey Face Panel
- 360K Formatted DS/DD Drive
- Highly Reliable
- IBM PC/AT Comp.

\$119.00

TEAC FLOPPY DRIVE



- 360K Formatted DS/DD Drive
- IBM PC/XT Compatible
- Half Height

\$89.00

ADDA MODEM



- Hayes Compatible with Software
- Compatibility: Bell 103 & 212A
- Speed: 0-300 & 1200 BPS
- Duplex Mode: Full or Half Duplex
- Busy Redial: Auto Busy Redial
- Data Format: 7 or 8 Bit ASCII
- Parity Fmt: Even, Odd or None
- Port Adapt: Com 1 or Com 2

Internal **\$179.00**

External **\$199.00**

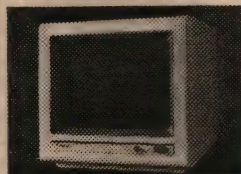
TAXAN 555



- Ultra High Resolution for Color/Graphics
- BOB Compatible
- Resolution for Color Text (720 x 400)
- Resolution for Graphics (640 x 200)
- Use with Taxan 440

\$275.00

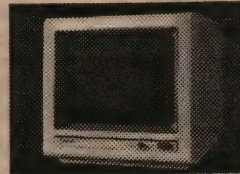
TAXAN 440



- 12" CRT with .31mm Dot Pitch
- Ultra High 720 x 400 Line Resolution
- Includes Cable

\$495.00

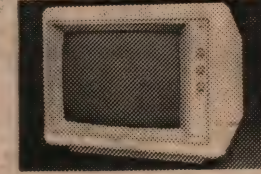
TAXAN 620



- Taxan High Quality • Green & Amber Switchable
- 12" Dot in Line 640 x 262 (H x V)
- RGB Input TTL Positive
- Includes Cable

\$395.00

TAXAN 121



- 12" Clear Green/Amber Monochrome Screen
- TTL Input
- Includes Cables

\$135.00

SUPER COLOR/PRINTER CARD



- Everything IBM Color Card has, and more.
- Two Graphics Modes:
4 Color - 320 x 200
1 Color - 640 x 200

\$99.00

Monochrome Graphic Card/Printer Adaptor



- Fully Compatible with IBM PC Monochrome/Printer Adaptor
- Good for IBM Mono Monitor
- Printer Port can be Configured for Centronics
- Hercules Compatible

\$159.00

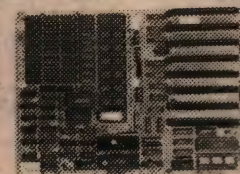
135 WATT POWER SUPPLY



- High Speed Fan • Hard Disk Ready
- Same Dimension as IBM PC/XT Power Supply

\$89.00

SUPER PC/XT Mother Board



- With 256K On Board, Assembled and Tested
- 8 IBM Compatible Expansion Slots Built In

\$325.00

ACCESSORIES FOR IBM PC & COMPATIBLES

- 4164 Fast RAM Chips (9 * 64K) Special \$.99
- 2764-25 EPROM Chips, each 4.00
- INTEL 8087 Math Coprocessor 125.00
- Serial Card Interface 69.00
- Parallel Card Interface 49.00
- Persyst BOB Board 375.00
- Taxan 115 Green Monitor (Composite) 109.00
- Taxan 116 Amber Monitor (Composite) 119.00
- Taxan 122 Amber Monitor 139.00
- Taxan 420 RGB Color Monitor 359.00
- Taxan 425 RGB w/Built in Green Switch 369.00
- Taxan TV Tuner (Composite) 79.00
- PC Mouse CALL
- Panasonic 1092 Printer (180cps) CALL
- Panasonic 132 Column Printer CALL
- EPSON FX-85 Printer 385.00
- DYNAX DX-15 Printer 395.00
- Printer Stand for 80 Column 25.00
- Keyboard Extension Cord 10.00
- Printer Cable 15.00

THE STEEL CASE ENCLOSURE



Only **\$79**

SUPER FLOPPY DRIVE CONTROL



- IBM PC Compatible Drive Controller
- Supports up to four floppy drives

\$59.00

THE KEYBOARD



IBM PC/XT Compatible **\$99**

ADDA 5151 KEYBOARD



- Only **\$99**
- Highly Reliable & Sensible Keyboard w/Cap & Num Indicator. Keytronic KB5151 Look-A-Like.

Prompt delivery, usually shipment within 48 hours (except personal check orders). 25% deposit required for C.O.D. orders. We welcome major educational institutions and PC users' groups to establish open accounts (P/O) status with us to facilitate shipment of orders. Write or call for details.

Prices quoted above do not include UPS shipment charges. Prices subject to change without notice. California residents add 6.5% sales tax.

Business hours: Mon.-Sat. 8:30am - 5:30pm

IBM PC is a registered trade mark of IBM Corp.

TAXAN is a registered trade mark of TAXAN Corp.

APPLICATION SOFTWARE CONSULTING SERVICE AVAILABLE



AMERICAN DIGITAL DISCOUNT ASSOCIATION, INC.

4040 SPENCER STREET, SUITE M
TORRANCE, CALIFORNIA 90503
TELEPHONE: (213) 542-3578

NATIONAL
COMPUTER
Communications Corp
Ask for Becky
260 West Ave.
Stamford, CT 06902
call: 800-243-9006
in CT 203-357-0004

Continued on page 192

100% HAYES COMPATIBLE!

- 1200/300 baud!
- Auto answer/auto dial smartmodem!
- All of the Hayes 1200 SmartModem features!
- 100% Hayes compatible!
- 2 year warranty!

ONLY \$249

Send check or money order or call in your
American Express to:

ALKER ENTERPRISES
860 Crusoe Circle
Thousand Oaks, CA 91362
(805) 495-2619
(805) 496-0850 (via modem)
California orders — add 6% sales tax



CASES

5 1/4" ENCLOSURES
SINGLE FULL SIZE AND DUAL 1/2 HEIGHTS

	Qty 1	Qty 3	Qty 5
Single PS and Case	\$44.95	\$39.95	\$35.00
Dual 1/2 Ht PS and Case	\$54.95	\$44.95	\$39.95
Dual FULL ht ps and case	CALL		
Filler pieces for 1/2 ht drives	\$3.00		
Y cables	\$3.00		
Data cables			

— Teac — New Disk Drives — Shugart —

Complete Disk Drive with Power Supply & Case Starting at **\$169.00!**

Color Computer Controller (J&M)

DRIVE Ø FOR RADIO SHACK COLOR COMPUTER

TANDON, MPI OR TEAC DRIVE (SINGLE SIDED 40 TRACKS SPEED 5 MS TRK TO TRK & UP)

POWER SUPPLY and CASE, TWO DRIVE CABLE WITH ALL GOLD CONNECTORS

J&M CONTROLLER, MANUAL and DOCUMENTATION

~~\$329.95~~

\$ SALE!

DRIVE Ø FOR RADIO SHACK COLOR COMPUTER

PANASONIC 1/2 HEIGHT DOUBLE SIDED DOUBLE DENSITY DRIVE 500K unformatted

POWER SUPPLY and CASE, 2 DRIVE CABLE WITH ALL GOLD CONNECTORS

J&M CONTROLLER, MANUAL and DOCUMENTATION

~~\$399.95~~

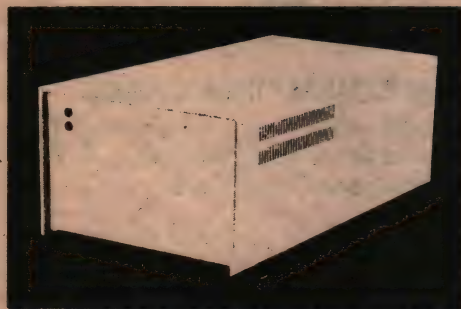
Super!!

SALE!

BUY THE BEST
FOR LESS!
CALL!

New Hard Drives

CALL
FOR BEST PRICES



stair PRINTERS

- 100 - 120 - 160 CPS
- Bidirectional Logic Seeking
- Friction and Tractor
- 9X9 Dot Matrix
- True Decenders
- High Res-Bit Image Block Graphics

PRINTER CABLES AND
INTERFACES AVAILABLE
Call for current pricing

PRINTERS

- Super Script Subscript
- Underlining
- Backspacing Doublestrike
- 5 6 8 12 10 12 and 17 Pitch
- Programmable Line Spacing
- SIX (6) MONTH WARRANTY

GEMINI 10X (9 Inch Carriage, 120cps) Friction and Tractor **CALL**
GEMINI 15X (15 Inch Carriage, 120cps) Friction and Tractor **CALL**
DELTA 10 (10 Inch Carriage, 160cps) Friction and Tractor **CALL**

Warranty - One Full Year

**NEW Letter Quality
PRINTER**
POWERTYPE Better Quality 18 c.p.s. **325.00**

Winchester Hard Drive ready to
run on the TRS 80 Model I/III/IV/4P,
Color Computer, I.B.M.-PC, Apple.



**CALL US TODAY!!
ORDER TOLL FREE**

**(617) 234-7047 •
1-800-635-0300**

* DEALER INQUIRIES INVITED.
(617) 234-7047



TRUE DATA PRODUCTS



195 Linwood Street, P.O. Box 546

Linwood, Massachusetts 01525

(617) 234-7047

HOURS MON - SAT- 9 - 6 (EST)

We welcome

- Visa /Master Charge  
- Checks (allow 2 weeks for clearing)
- C.O.D. Add \$2.00

Printers



star
GEMINI-10

only

\$ 239.95

SANYO

CALL FOR NEW
NEW LOW PRICE



FREE

Plastic library case supplied with all
diskettes

1795

10 Diskettes

 CONTROL DATA

I Own an Atari
Continued from page 185
window is born! Then placing

the arrow on the newly created
ICON, one-clicking, and the
two-clicking a new menu ap-

pears. This one allows you to select background, border, colors, shadowing, the check, centered, and a bunch of other things for the selected symbol. I created a little window that might be used for a space shot. You can size each box and type in most anything you want and have your program to update the items if you wish. I was quite impressed again. I wanted to continue messing around with the various programs but really needed to read the material. The disks had a README document to be printed and the editor had a TUTORIAL of some 62 pages to be printed.

The five inches of paper that came with the Development

package contained about 2000 pages, much of it double sided. I'm not sure of the order to discuss the package but here goes. There's the Introduction to GEM Programming, GEM Setup Guide, A Hitchhiker's Guide to the BIOS, a GEM File (non-copyrighted work for free use), GEM Programmers Guide Vol. 1: VDI, Virtual Device Interface and Vol. 2: AES, the Application Environment Services. Vol. 1, the VDI has a software tool to re-design the Mouse arrow. That's high on my list of do-items. There is something called the LINE 'A' Document and Engineering Hardware Specification. There are addresses of the MIDI (Musical Instrument digital In-

terface), Intelligent keyboard Protocol, Kermit Protocol Manual and the Kermit User Guide. There's something on Programmable Sound Generator and a massive amount of a Position independent DOS mover called RELOC. There's Digital Research's "C" Language Programming Guide and last but not least the CP/M-68K Operating system Programmers' Guide. With that many programs and this much literature, it has to be easily worth the \$300. I only hope my mind can absorb it all.

Overall Rating

I'm sure you noticed me using the word, "impressed" several times. That sums my feelings. Technically, the 520ST and associated equipment seem to be quite good. The current supply of software is poor but time will take care of that problem. I don't think it will be too long before it happens. Atari has been very responsive in correcting the minor hardware problems that a very few have had. Their attitude is good and I for one am willing to have faith in them that it will "all come together" in a short time. The product looks and acts good and I think it has the potential of the computer of the future.

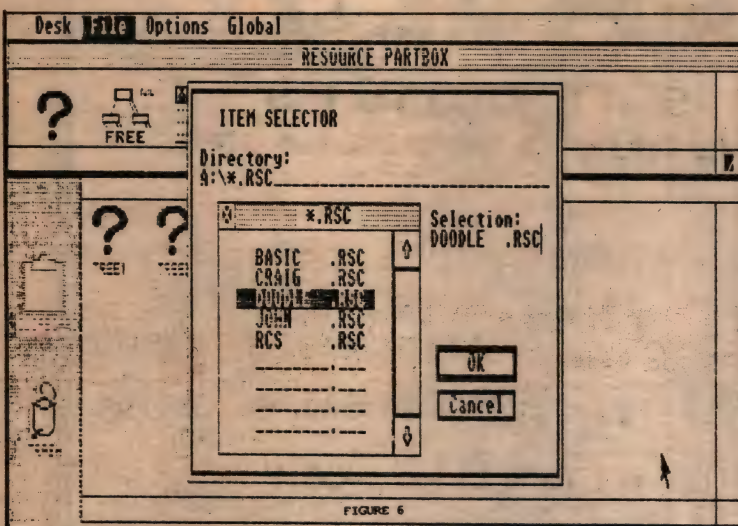


FIGURE 6

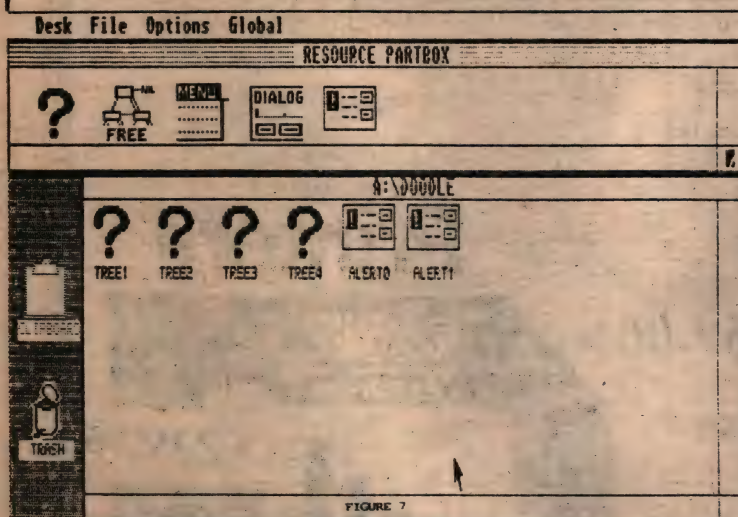


FIGURE 7

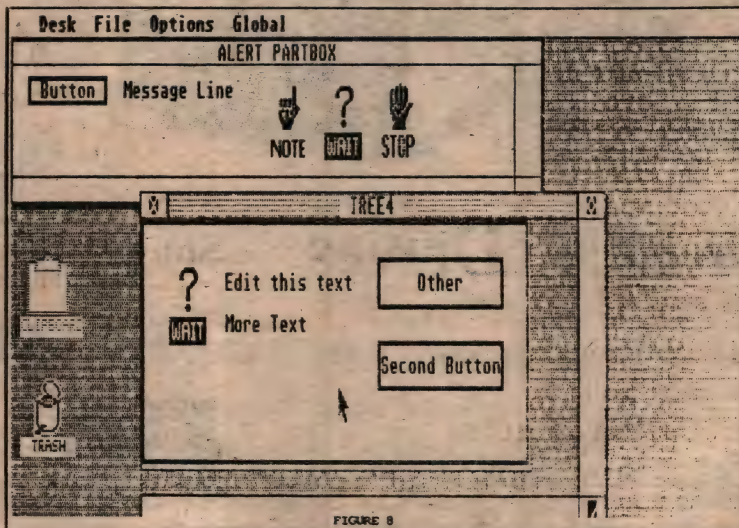
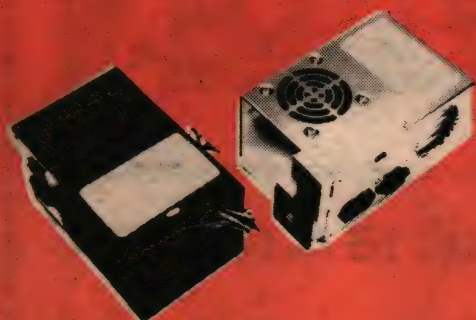
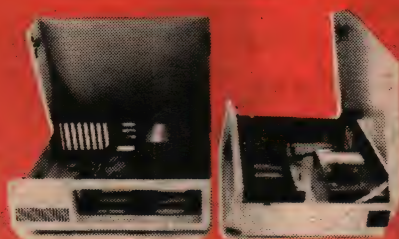


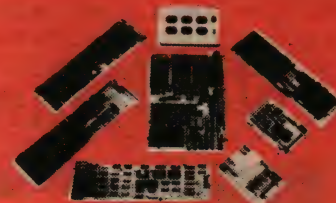
FIGURE 8



IBM Compatible 135 Watt, Back & Side Switch Model **\$85⁰⁰**



IBM COMPATIBLE CASE
Back Switch or Side Switch
Hinged Flip Top
\$59⁰⁰



IBM-COMPATIBLE CARDS

Monochrome Card	\$ 59 ⁵⁰
Monochrome Graphics (Hercules Compatible) and Printer Card	\$ 84 ⁵⁰
Floppy Disk	\$ 42 ⁵⁰
4 Drive w/Cable	\$ 94 ⁵⁰
384 Multifunction Card w/Clock	\$ 29 ⁵⁰
Printer Card	\$ 74 ⁵⁰
Color Graphics Card	\$ 220 ⁰⁰
Super XT 16 Motherboard w/256 K Ram	\$165 ⁰⁰
w/0K Ram	\$ 12 ⁵⁰
Power Strip	\$142 ⁵⁰
Power Supply (AT Compatible) 192 Wat	\$ 89 ⁵⁰
AT Case	\$ 89 ⁵⁰
AT Keyboard	

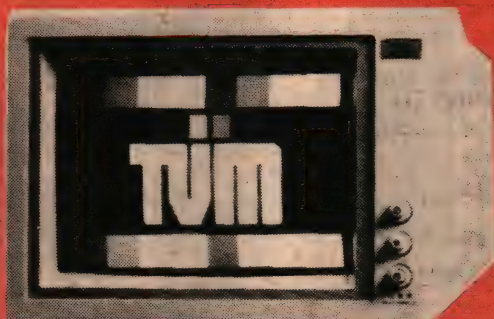


Type 5151
100
\$89⁵⁰



Type 5050
83 Key
\$59⁵⁰

IBM
COMPATIBLE



Front Panel Selector Knob provides convenient control of Multi-Display Function
14" Full Color, Green or Amber **\$349⁰⁰**
12" Black & White Monitor **\$ 99⁰⁰**

MASTERCARD, VISA, COD,
PERSONAL CHECKS WELCOME



Mfg. & Trading Co.
4505 Ratliff Drive
Addison, Texas 75001
214/931-7181

**SATISFACTION
GUARANTEED**

New Items Are Available Weekly
Call For All Your IBM Compatible Requirements
Higher Quality at Lower Cost!
Dealers & distributors inquiries welcome
We are Never Knowingly Undersold!

Computer Mail Order Hotline:

(714) 995-2341

★ FAST DELIVERY GUARANTEED ★

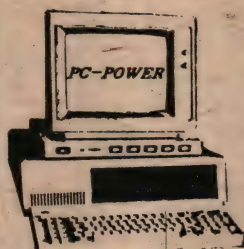
135W Power Supply



- ★ High Efficiency
- ★ Built-In EMI Filter
- ★ Low Output Ripple
- ★ 4 Plugs to handle 2 Floppy Drives
- ★ 2 Hard Disk Drives
- ★ Over Voltage Protection
- ★ Short Circuit Protection
- ★ Dual Input Voltage 115/230V AC
- ★ 100% Thermal Cycle and Burn-In
- ★ Meets UL/FCC Standards

SPECIAL LOW PRICE \$99

PC-101 PC-POWER with Surge & Noise Suppressor



- ★ Size designed for IBM PC/XT & AT
- ★ Circuit Break-10 A
- ★ Illuminating Switches (Green or Amber)
- ★ 5 Outlets

SPECIAL LOW PRICE \$59.

IBM PC/XT Fully Compatible System
CALL for SPECIAL PRICE

No More Memory Expansion Card

1 Mega Memory
on Board

Fully IBM PC/XT
Compatible

Seven Expansion slots
and one special J1 interface
for easy bus expansion
and custom configuring.

256K Bytes using
64K chips
1 Mega Byte using
256K chips



Space for 8087
co-processor

INCLUDING:

1. Assembly Manual
2. Schematics
3. Parts List

\$49.

Disk I/O Card for IBM™ Compatible Systems

1 Serial, Parallel Game Port
Real-Time Clock & Disk Drive Controller

SPECIAL PRICE \$159.

SPECIAL!! Joy Stick



- ★ For Apple II, IIe or IBM PC
- ★ Two operating modes can be selected either "Auto-Centering" or "Free-Floating"

ONLY:

\$24

Multi-function Card (ØK) for IBM™ PC, PC/XT and IBM™ Compatible

1 Serial, Parallel, Game Port, Real-Time Clock,
Up to 384K, Printer Spooler Ram Disk

\$139.

ADD-ON for IBM™ & COMPATIBLE

Disk Drive Controller Card w/Cable	\$ 69.
Multi-Function Card (ØK) 1 serial, parallel, game port, real-time clock, up to 384K.....	\$149.
Color Graphics Card	\$ 99.
Monochrome Graphic Card w/printer port	\$139.
512K Ram Card (ØK).....	\$ 75.
Disk I/O Card, 1 serial, parallel, game port, real-time clock and disk drive controller	\$139.
I/O plus Card, 1 serial, parallel, game port, real-time clock and optional 2nd serial port	\$109.
135 W Power Supply for IBM™ PC and compatible system	\$105.
10 MB Internal Hard Disk w/controller.....	\$550.
20 MB Internal Hard Disk w/controller.....	\$830.
Mega Board Case (IBM™ look alike, Flip-Top	\$ 79.
IBM™ Look-Alike Case (same style as IBM™ case)	\$ 79.
Parallel Printer Cable.....	\$ 12.
Parallel Printer Card.....	\$ 39.
Keyboard (Big Return Key, LED for NUM & CAP)	\$ 89.
Serial Card (2nd serial optional)	\$ 45.
Serial Interface Cable	\$ 19.
Game Adaptor (Handles 2 Joysticks)	\$ 35.
Speaker w/stand.....	\$ 4.
Teac DS/DD slim drive (55B).....	\$ 99.
Adjustable Monitor Swivel Base.....	\$ 12.

IBM™ ADD-ON & COMPATIBLE BARE BOARD

(with Schematics, Parts List)

Color Graphic Bare Board	\$ 25.
Multi-Function Bare Board	\$ 25.
Disk Controller Bare Board	\$ 25.

APPLE™ ADD-ON & COMPATIBLE BARE BOARD

(with Schematics, Parts List)

Z-80/80 Column/16K Ram/Eprom Programmer/Super Serial	\$ 9.
128K Ram Card.....	\$ 12.

APPLE™ ADD-ON

Z-80 Card for II, II+, IIe	\$ 45.
128K Ram Card.....	\$ 99.
Epson Printer Interface Card w/Cable.....	\$ 35.
Parallel Printer Interface Card w/cable	\$ 39.
80 Column Card (Videx type).....	\$ 48.
Softswitch for Videx 80 Column Card.....	\$ 10.
Super Serial Card	\$ 95.
RS-232 Card.....	\$ 40.
Eprom Programmer (program 2716, 2732, 2764) w/manual	\$ 55.
I.C. Tester (Burn-In or Identify 54/74 TTL, HC, C, and 40 series COMS IC w/software and manual	\$ 99.
Disk Drive Controller Card	\$ 35.
16K Ram Card for II, II+	\$ 35.
Joystick for Apple II, II+, IIe.....	\$ 15.
Cooling Fan w/surge protection, dual outlets	\$ 27.

Atlantic Computer Products, Inc.

Manufacturer and Importer

3050 W. Lincoln Avenue, Suite B, Anaheim, CA 92801

(714) 995-2341

TERMS:

- ★ FREE Shipping to all Prepaid Orders.
- ★ Personal Checks will take 10 days to clear.
- ★ C.O.D. Orders/Cashiers Check only.
- ★ VISA/Mastercard-No service charge, Shipping Charge only.
- ★ Prices subject to change without notice.
- ★ All items 90 days guarantee.

**Dealer & OEM
Inquiries Welcome.**

1986 Radio Shack Computer Catalog Features More Than 1,000 Items

Tandy Corporation/Radio Shack demonstrates the meaning of "Tandy, Clearly Superior" in its new *1986 Radio Shack Computer Catalog*. The catalog highlights Tandy's complete MS-DOS operating system-compatible business computer product line. Each of the computer products in the catalog is designed to provide maximum value per dollar, and is backed by Radio Shack's dependable nationwide service and support.

appeared in nearly 7,000 Radio Shack outlets nationwide in September--represents the most complete line of business microcomputers offered by any single manufacturer. A total of 1,045 computer products are displayed, including 289 new items, 80 of which are at lower prices than in the 1985 catalog.

The popular Tandy 1000 personal computer--just one of the Tandy's MS-DOS operating system computers--is dis-

This 64-page catalog--played with a list price of \$999, and the new Tandy 1000 HD computer is featured in the catalog for the first time. The MS-DOS operating system Tandy 1200 HD computer is listed for the new low price of \$1,999, a savings of \$1,000 over the most recent 1985 computer catalog.

Peripherals for business use include the new low-cost Hayes-compatible 1200-Baud PC Modem, listed at only \$299.95. For information storage, the catalog announces the TCS-100 Tape Cartridge System for backing up MS-DOS operating system hard disk computers such as the Tandy 1000 HD and Tandy 1200 HD computers, the IBM PC and PC compatibles. The 10-megabyte Disk Cartridge System provides another option for backing up Tandy 1000 and other IBM PC-compatible computers. It also is offered for

XENIX operating system based systems such as the Tandy 6000 personal computer.

The Tandy 2000 computer, also with the MS-DOS operating system, runs approximately twice as fast as the IBM PC. New software for the Tandy 2000 includes the powerful VersaCAD program for computer-aided drafting, and Lumena, a sophisticated graphics program for professional artists. Both take advantage of the Tandy 2000 computer's speed and high resolution graphics.

The Tandy 200/Model 100 Portable Disk Drive, also announced in the new catalog, stores information with Tandy's portable computers. The disk drive stores 100K of data on 3 1/2 inch floppy diskettes, excellent for the on-the-go executive.

Among the new products in the catalog is the latest addition to the Tandy computer line--the Model 4D computer which includes DeskMate software. Available in November for \$1,199, the 4D works with the broad selection of proven business and education software currently available for the Model III and Model 4 computers.

Families and computer hobbyists will delight in the more than 20 new programs for the Color computer. The new Orchestra-90 CC hardware and software package can be used with a stereo system to turn any Color computer into a music synthesizer.

The *1986 Radio Shack Computer Catalog* (RSC-15) is available at Radio Shack stores, Radio Shack Computer Centers and participating dealers nationwide.

For more information contact Tandy Corporation/Radio Shack, 1800 One Tandy Center, Fort Worth, TX 76102.

Mention that you read about it in the *Computer Shopper*. ●



SMITH-CORONA®
160 CPS, NLQ with Tractor Feed Buffer
D-200 \$325
NATIONAL WATS LINE 800-544-4354
GEORGIA RESIDENTS (404) 441-3112
magnum p.c.
5965 PEACHTREE CORNERS EAST
NORCROSS, GEORGIA 30071

HAVE IT AT YOUR DOORSTEP!



\$449

FOR YOUR HOME OR OFFICE

HOLDS IBM, APPLE, COMPAQ & OTHER MAJOR BRANDS

- Modular & High Quality
- Acrylic coated nonglare ebony surface, framed in pecan woodgrain laminate to blend with any decor
- Easy Assembly
- Functional

Plus \$49 for shipping/handling (s/h) in the U.S. except Hawaii & Alaska.

MAY BE PURCHASED SEPARATELY

DESK with lower shelf & locking 2 door cabinet (50"W x 28"D x 27"H)	\$169 + \$25 s/h
HUTCH with adjustable shelves & tilting removable monitor platform (47"W x 11 3/8"D x 27 1/4"H)	\$119 + \$20 s/h
CORNER fully reversible on either side (90°)	\$59 + \$10 s/h
PRINTER STAND with 2 lower shelves, 2 slots & paper catcher. (24"W x 28"D x 27"H)	\$129 + \$20 s/h

Name _____
Address _____
Phone _____
City _____ State _____ Zip _____

☐ Check ☐ AM EX ☐ MC ☐ Visa Expiration Date _____

Credit Card Number _____

Mail To: Portable Stands and Furniture, Inc.
P.O. Box 36270
Houston, Texas 77036
or call (713) 781-8060

Texas residents add 6.125% sales tax. Allow 4 weeks for delivery. No C.O.D.

Continued from page 188

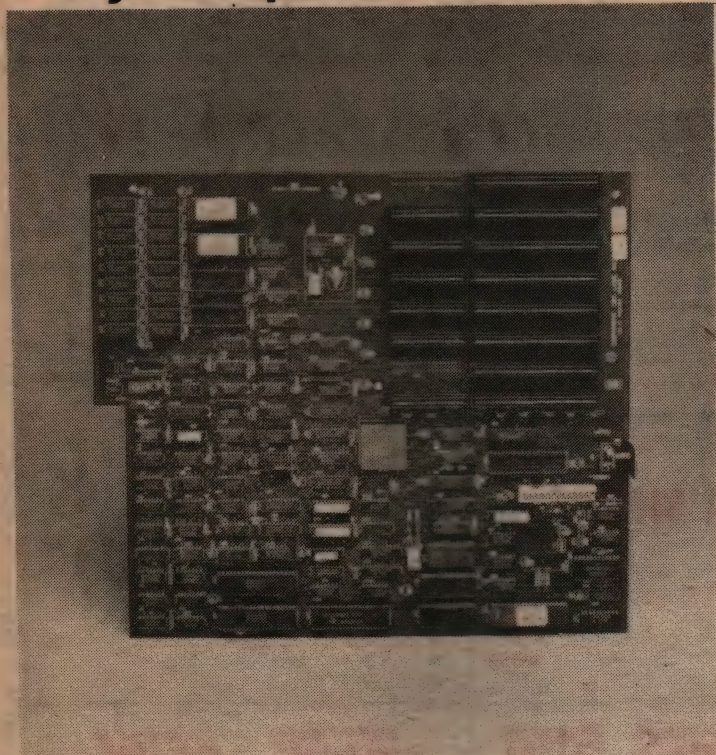
```

048F PRINT " <p>pica <e>elite ";
04B2 INPUT tipe
04B7 IF tipe="p" OR tipe="p" THEN
04CC tipe="pica"
04D7 ELSE
04DB tipe="elite"
04E7 ENDIF
04E9 PRINT
04EB PRINT " print pitch is set to "; tipe
0514
0515 (* set parameters for printer typestyle
053C
053D
055B IF brand="gemini" AND tipe="elite" THEN
055B PRINT #path,CHR$(27); CHR$(66); CHR$(2);
056E PRINT
0570 INPUT " use doublestrike ?";ans
0595 IF ans="Y" OR ans="y" THEN
05AA PRINT #path,CHR$(27); CHR$(71);
05B9 ENDIF \ ENDIF
05BD
05BE IF brand="powertype" AND tipe="elite" THEN
05DF PRINT #path,CHR$(27); CHR$(66); CHR$(2);
05F2 ENDIF
05F4
05F5 IF brand="gemini" AND tipe="pica" THEN
0612 PRINT
0614 INPUT " use emphasized print? ";ans
063D IF ans="Y" OR ans="y" THEN
0652 PRINT #path,CHR$(27); CHR$(69);
0661 ENDIF \ ENDIF
0665
0666 REM set left margin
0678 IF tipe="elite" THEN
0689 PRINT #path,CHR$(27); CHR$(77); CHR$(11);
069C ELSE
06A0 IF tipe="pica" THEN
06B0 PRINT #path,CHR$(27); CHR$(77); CHR$(9);
06C3 ENDIF \ ENDIF
06C7
06C8 REM this didn't seem to work
06E3 (* REM set six line tab for PowerType
0708 (* IF brand="powertype" THEN
0725 (* PRINT #path,CHR$(27);CHR$(80);CHR$(6);CHR$(0);
075A (* ENDIF
0763
0764 REM set header line
0776 PRINT #path,CHR$(27); CHR$(82); CHR$(1);
078A
078B PRINT
078D PRINT " What is the name of your"
07B4 PRINT " file on disk? ";
07DE INPUT name
07E3
07E4 IF form=TRUE THEN
07EF PRINT
07F1 PRINT " What is the title of your"
0819 PRINT " report or article? ";
0843 INPUT title
0848 PRINT
084A RUN getFile(tipe,name,title,brand,device,linum,
path,form)
0877 ELSE
087B IF form=FALSE THEN
0886 PRINT " Letter printer selected"
08AC PRINT
08AE RUN letter head(tipe,name,brand,device,path,form)
08D1 ENDIF \ ENDIF
08D5
08D6 END
08D8
PROCEDURE inFile
0000
0001 (* file creator for cococorr
001D
001E DIM outpath:BYTE
0025 DIM diskpath:STRING
002C DIM file:STRING[29]
0038 DIM text:STRING[72]
0044 DIM line,count:REAL
004F DIM cls,character:STRING[1]
005F
0060 cls=CHR$(12)
0068 diskpath="/d8/"
0073
0074 PRINT cls
0079 PRINT
007B PRINT " (c) 1985 micro-bytes / w o
r d w a r e"
00B7 PRINT
00B9 PRINT " Text Processor for CoCo Correspo
ndence"
00EF PRINT
00F1 PRINT " Input 64 characters per line maximum
for pica"
00F3 PRINT " 72 characters per line maximum
for elite"
012C PRINT
012E PRINT " Use shift/up-arrow to terminate, and
close file."
0168 PRINT
016A PRINT " filename ",file
01A6 PRINT
01A8 PRINT
01AA INPUT "
01D0 PRINT
01D2
01D3 CREATE #outpath,diskpath+file:WRITE
01E3
01E4 PRINT #outpath,CHR$(0);
01EF
01F0 50 PRINT
01F5 PRINT "text:"
01FE GET #1,text
0207
0208 line=LEN(text)
0212
0213 FOR count=1 TO line STEP 1
022B
022C character=MID$(text,count,1)

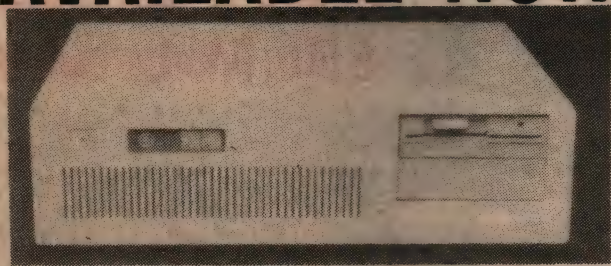
```

Continued on page 196

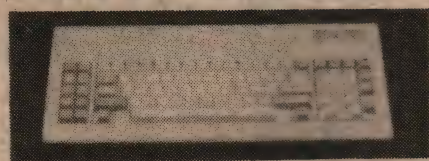
***** THE AT SOLUTION *****
Fully Compatible With IBM



AVAILABLE NOW



AT CASE



AT KEYBOARD

CSS AT System Board

FEATURES:

- 512KB RAM on Board with 6MHZ Clock (upgradable to 8MHZ).
- High-performance high-speed, true 16 bit 80286 Microprocessor.
- 7 channel Direct Memory Access (DMA)
- 16 Level Interrupt.
- Three Programmable Timers
- Same dimension as IBM AT System Board.
- Use AWARD SOFTWARE BIOS.
- Made in U.S.A.
- 90 Days Warranty.

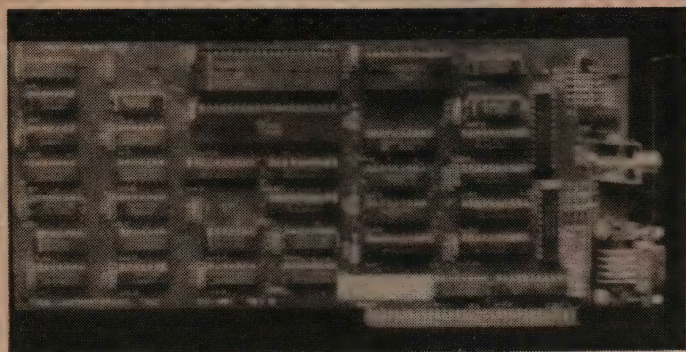
AT Case — compatible to IBM case
 AT Power Supply — 200 Watt 115/
 200 Selectable

FDC & HD Controller
 Serial/Parallel Card for AT
 AT Keyboard — Compatible to IBM

CSS RAINBOW

Color Graphics Card

- Same features as IBM Color Graphics.
- Use Gate Array Chip
- Made in U.S.A. with 90 days warranty with Parallel Printer Port.



**ALSO CSS
 RAINBOW PLUS**

Dealer & OEM
 Welcome
 Call for Pricing

See us at
 COMDEX SHOW
 MGM Booth #651

CSS LAB, INC.
 13542 Newport Ave.
 Tustin, CA 92680
 (714) 838-4115

IBM COMPATIBLE BARE PC BOARDS



HEXPACK*** A workalike copy of the famous AST SIX-PACK, WITH UP TO 384K RAM, Clock, Calendar and Serial and Parallel ports. 100% IBM and AST compatible, complete with schematic, parts placement and assembly data.....**\$29.95**

Optional complete manual and software diskette.....**\$8.95**
MONTE CARLO CARD*** One of the best multifunction cards we have ever seen. This one takes either 64K or 256K RAMS in any combination for up to 1 Mbyte on board. (640K DOS accessible, balance subroutine accessed) PLUS two game ports, Clock, Calendar and Serial and Parallel ports. Clearly an awe inspiring array of functionality on a single card. Complete with schematic, parts list and placement diagram.....**\$34.95**

Optional complete manual and diskette.....**\$8.95**
COLOR GRAPHICS CARD*** A workalike copy of the popular PERSYST color graphics card. 100% true to original and 100% compatible to IBM std. With assembly data.....**\$24.95**

MONOCHROME GRAPHICS*** A workalike of the IBM mono card 100% compatible, with all assembly data.....**\$24.95**

MONOCHROME GRAPHICS*** A workalike copy of the very nice HERCULES mono card, with static RAM on board. With all assembly data.....**\$29.95**

DISC CONTROLLER*** A 1/4 size card for the short slot and portable use. 100% compatible, 1-4 drives complete with assembly data.....**\$19.95**

DISC CONTROLLER*** A 1/2 sized card for regular slot that is 100% compatible, runs 1-4 drives.....**\$14.95**

DISC CONTROLLER + GAME I/O A very compact 1/4 sized card that has two game ports and runs 1-4 drives. 100% compatible with all assembly data.....**\$19.95**

MULTIFUNCTION CARD*** The older style with only 256K RAM On board with Serial, Parallel ports, Clock, Calendar. A very good style card on sale while they last, this is a copy of the earlier AST 256K multifunction cards. Complete with all assembly data.....**\$19.95**

384 RAM*** RAM only in close array, 384K of 64K RAM ideal for economy enhancement of system capacity. With all assembly data.....**\$19.95**

512K CARD*** Another very economical expansion card. Takes 64K RAM in close array. With all assembly data.....**\$24.95**

KRAM CARD*** We took a 512K card and rewired it for 256K RAMS. It now has four times the memory or 2 MBYTES. It closely follows the function of the popular JRAM card as all this type do, and also shares partitioning parameters to the extent that it will run the JRAM software or other similar programs: RAM Disc Drives are very easy to delineate. With all assembly data.....**\$34.95**

PROTOTYPE CARD 100% WW holes with DB-25 and DB-9 footprint on end.....**\$24.95**

MEMORY PROTOTYPE CARD This unique card has a memory array at one end. 36 16 pin sockets are placed in copper on board with all bussing in common, but with CAS, RAS etc brought out row by row and column by column so that either 64K or 256K RAMS can be quickly wired in. A 0.1 bypass cap is on each IC as well. The remaining 3/4 of the board is 100% WW holes with a DB-25 and DB-9 footprint on one end.....**\$24.95**

EXTENDER CARD When you need to service a card with power on it is very hard to get at the board to trace signals etc so we made this little gem that lifts the whole thing up by about 6" for easy access.....**\$19.95**

A 1/4 size card with two serial ports on board.

PARALLEL PRINTER CARD A 1/4 size card with a complete IBM std centronics printer port on board, with all data.....**\$14.95**

GAME CARD A 1/4 sized card with two game ports.....**\$14.95**

DISC CONTROLLER + PRINTER CARD Runs a parallel centronics printer and 1-4 drives. With all data.....**\$24.95**

PIA CARD A fully locatable dual port PIA card. The two ports are DIP Switch programmable anywhere.....**\$19.95**

PIA + PROTOTYPE CARD Same as above by a full sized card with WW holes and DB-25 and DB-9 footprint.....**\$24.95**

IBM CASE

We have the nicest case of all the various competing cases, ask any friend who has bought someone else's case and then has seen ours. The lid is hinged with pushbutton access. The back is cut for 8 XT slots and it comes with all the case rack inserts for cards, card guides, blind disc filler plates, standoffs, feet, screws, all for **\$59.95**

Please specify back or side cutout for power supply.

We also have an IBM 8 Slot/6502 Board dual duty case for making IBM look-a-like 6502 systems.....**\$79.95**

COMPUTER PARTS GALORE

56 HARVESTER AVENUE, BATAVIA, NY 14020

1-800-431-9008

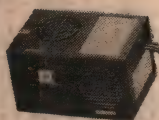
NEW YORK RESIDENTS (716) 343-6133

CANADIAN RESIDENTS (416) 925-8291

TERMS: Minimum order is \$10. For orders less than \$60, add \$5 shipping & handling for UPS Ground delivery or \$10 for UPS 2nd day air. Orders over \$60, add 5% for shipping & handling for UPS ground. 10% for 2nd day air. COD orders add \$2.50 to above fees. New York residents add proper sales tax. COD payment must be cash, certified check or money order. Phone and mail orders can pay by Visa, MasterCard, Amex., or COD. We accept personal checks with mail orders, but allow two extra weeks for processing.



SWITCHING POWER SUPPLY



Exact fit to our PC/XT case

Two new power supplies to power your IBM® work-a-like the 100 Watt one will run most systems, the 130 Watt one is ideal for hard disc systems. Both have the IBM® standard power connector and 2 drive power plugs so they drop right into the case and plug into the drives and motherboard right away.

100 WATT

+5V @ 10 AMPS
+12V @ 3.5 AMPS
+5V @ 0.5 AMPS
-12V @ 0.5 AMPS

\$89.00

130 WATT

+5V @ 15 AMPS
+12V @ 4.5 AMPS
+5V @ 0.5 AMPS
-12V @ 0.5 AMPS

\$99.00

130 WATT SIDE SWITCHING POWER SUPPLY

Retrofit
IBM & Our
Side Sw
Cases
+5V -15A
+12V -4.3A
-5V -1/2A
-12V -1/2A



4 Drive Connectors

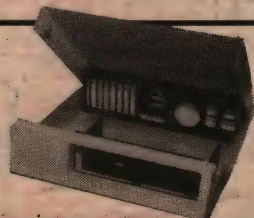
\$139.95

IBM POWER SUPPLY



One of the nicest open frame IBM type switching power supplies we have ever seen. Came from the defunct NCR IBM compatible, runs the whole thing, hasm +5V-7A, +12V-3A, -5, -12-1/2 A. A very good unit for starter system. Will not run hard disc system.

a real Steal at.....**\$39.95**



MEGABOARD CASE, similar to the above, but no pushbuttons or hardware, from DTC in Dallas Texas. A stronger US made case, but less finishing parts. Fits the MEGABOARD exactly with side cut extender, for back power supply.....**\$89.95**

MBE-XT

AN IBM® XT COMPATIBLE
8 SLOT MOTHERBOARD

MBE-XT BARE PCB WITH
MANUAL AND SCHEMATICS.

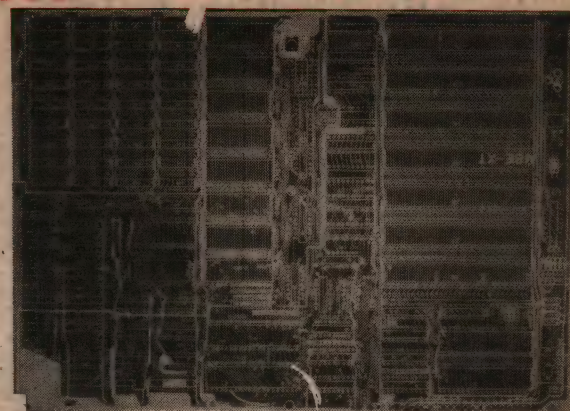
\$49.95

LAZY BOARD

What is your time worth?? We have had a bunch of MBE-XT boards stuffed and wave soldered so you can save all that time soldering them up. All you need are the IC's memory, and BIOS and you are set to go.....**\$159.00**

FULLY WIRED AND TESTED
WITH 64K ON BOARD WITH
MEGABIOS AND MANUAL

\$295.00

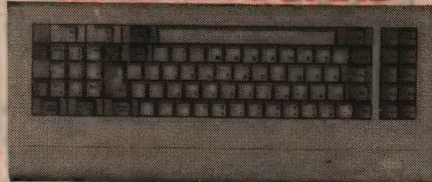


MEGA BIOS

The amazing MEGABIOS® from DTC of Dallas. A fully rewritten BIOS that allows you to make a fully compatible legal system. Note they do not ask MEGABUCKS® for it, only.....**\$39.95**
TAIWAN BIOS, not as good or 100% compatible but it will get you running and save you bucks.....**\$19.95**

- 8088 16 BIT MICROPROCESSOR
- 8087 MATH PROCESSOR, OPTIONAL
- UP TO 256K DRAM ON BOARD
- HAS DIGITAL DELAY LINE FOR ERROR FREE MEMORY REFRESH
- 8 IBM COMPATIBLE EXPANSION SLOTS
- 4 DMA AND TIMER CHANNELS
- 64K/128K EPROMS JUMPER SELECTABLE
- WILL RUN ANY COMPATIBLE BASIC
- IBM POWER PLUG COMPATIBLE
- SAME PCB SIZE AS IBM XT
- RUNS PC-DOS AND CPM-86
- COMPATIBLE BIOS IN STOCK

KEYTRONICS 5150 IBM KEYBOARD



That's right folks, we were able to get a small quantity of genuine KEYTRONICS 5150 BRAND NEW US made IBM type keyboards for a really low-low price. However they will only last for a few short weeks so order right now as we want to move them real fast at only.....**\$79.95**

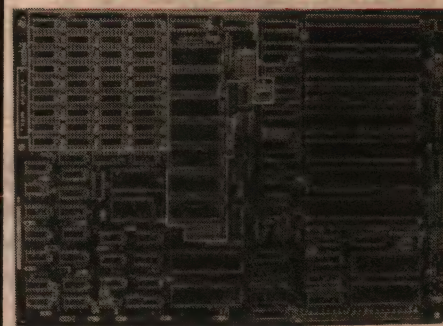
512K KIT \$109.00

Can you beat that!!! All the parts to make a 512 card including the card, all sockets, all IC's, all Bypass caps, and ALL THE RAM FOR 512K (72 of em). There ain't nothin to buy except solder. Limited quantity.....**\$109.00**

EPROM PROGRAMMER

Brand new PCB set that programs EPROMS using your IBM PC or XT machine. Has a two boards, one inside in a slot and the other with the ZIF socket etc outside where you can see and use it. Not like the others that are all internal. PCB set and all assembly data.....**\$24.95**
 Diskette with operating software.....**\$7.95**

NEW-640K IBM XT Compatible 8 Slot Motherboard



We have worked and sweated over the MBE-XT board and have found a way to modify it and to take 256K RAMS so that you can use 2 rows of 256K and 2 of 64K to get a total of 640K of DOS viewed memory (Up to 1 Mbyte with special software). It has all the features of the MBE-XT plus the extra RAM and the size is exactly the same as the XT motherboard with all the same slot and hole spacing to fit our cases listed on this page and take the power supplies we sell as well. Of course it costs a tiny bit more, but \$10.00 is worth it for the extra RAM.

\$59.95

20 MHZ SCOPE SCOOP RAMSEY QUALITY



Ideal Logic Scope

\$399.95

- BAND WIDTH- DC: DC TO 20MHz (-3db)
- DUAL TRACE-AC: 10Hz TO 20MHz (-3db)
- SWEEP TIME- .2 μSEC TO .5 SEC/DIV ON 20 RANGES
- VERT./HORZ. DEFLECTION: 5mV TO 20V/DIV ON 20 RANGES
- COMPLETE MANUAL AND HIGH QUALITY
- HOOK-ON PROBES INCLUDED
- INPUT IMPEDANCE: 1 MEG OHM
- TV VIDEO SYNC FILTER
- X, Y AND Z AXIS OPERATION
- 110/220 VOLT 50/60Hz OPERATION
- COMPONENT TESTER
- LP CONSUMPTION-19 WATTS
- BUILT IN CALIBRATOR
- AUTOMATIC OR TRIGGERED TIMEBASE

\$399.95

WITH PROBES

FULL ONE YEAR
WARRANTY

SWITCHING POWER SUPPLY



Another great bargain from PARTS GALORE, A small power supply switching style that give +5v-4A; +12v 1A and -5v (adjustable) on a compact 4x8" open frame PCB. Cost Northern Telecom \$50.00 when they bought 5000 pieces. We got em when a subcontractor went belly up for 10% of that price and we are selling em for

\$18.95 NEW IN BOX TESTED

AC power cable (3 Wire) for above.....**\$2.50**

COMPUTER PARTS GALORE

56 HARVESTER AVENUE, BATAVIA, NY 14020

1-800-431-9008

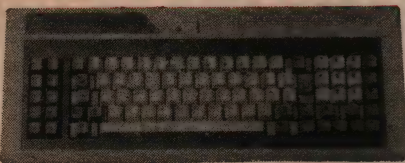
NEW YORK RESIDENTS (716) 343-6133

CANADIAN RESIDENTS (416) 925-8291

TERMS: Minimum order is \$10. For orders less than \$60, add \$5 shipping & handling for UPS Ground delivery or \$10 for UPS 2nd day air. Orders over \$60, add 5% for shipping & handling for UPS ground. 10% for 2nd day air. COD orders add \$2.50 to above fees. New York residents add proper sales tax. COD payment must be cash, certified check or money order. Phone and mail orders can pay by Visa, MasterCard, Amex., or COD. We accept personal checks with mail orders, but allow two extra weeks for processing.

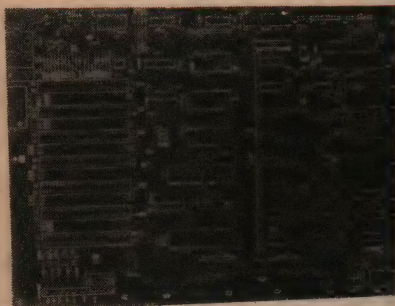


APPLE IIE[®] DETACHED KEYBOARD



A GEM of a keyboard, in a nice beige ABS case. Lets you build an IBM look-a-like that runs like a IIE with 2 drives in case using our \$69.95 case on this page. This KB is fully IIE compatible, with all functions. **\$149.95**

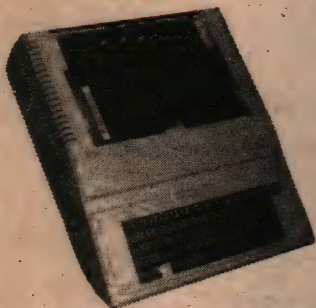
MOTHER BOARD



100% IIE[®] Compatible, for those of you who wish to build a clone of the very popular APPLE IIE[®]. This board is a reverse engineered copy of the IIE[®] and is 100% compatible. We have the motherboard and the custom ICs only. All other parts are widely sold. The custom ICs are workalike chips that do not infringe any copyrights. The software for operating the board must be obtained elsewhere as we do not have it for sale. When we say 100% we mean it.

A very good buy at **\$49.95**
Custom IC set(2) **\$49.95**
Keyboard encoder (AYS-3800) **\$14.95**
Character generator, ULC **\$14.95**

IIE[®] ABS PLASTIC CASE

\$49.95

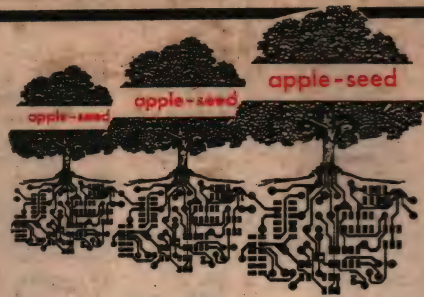
This case is made to fit the Mother Board listed here for making IIE[®] clones and it makes a very nice looking copy. There is just enough difference to avoid design infringement. The case also has no brand names or other marks on it.

A good buy at **\$49.95**

IIE[®] MATRIX KEYBOARD

\$69.95

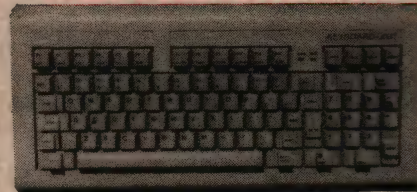
This keyboard fits the above case and has 100% clone compatibility. It will allow operation of all IIE[®] commands. Another bargain at **\$69.95**



The famous APPLE-SEED and APPLE-SEED II are the books that see all, tell all on the various APPLE clone motherboards and peripherals. They are well worth the \$12.95 that we are asking. And KOSMIC has been at it again on IBM clone motherboards and peripherals and has composed the one and only "BIG BLUE SEED". It goes into greater detail on a smaller number of motherboards and peripherals (over 20 and growing) and will help you to build many of them at a saving.

APPLE-SEED I Motherboard book **\$12.95**
APPLE-SEED II Peripheral card book (over 75 cards) **\$12.95**
BIG BLUE SEED IBM peripherals and motherboards (over 50) **\$14.95**

MAK II ACCUFEEL KEYBOARD



This is a detached keyboard in an ABS case with a 6" curly cord to connect to 6502 based machines. It used a serial data format for error free transmissions down the curly cord with a serial to parallel to converter board on the end that is fully 6502/Apple compatible. Has auto repeat, beep, no beep. 10 user programmable macros, 50 preprogrammed macros, auto line number. **\$149.95**

FRANKLIN COMPATIBLE

CRYSTALS

32.768 KHz.....\$2.00	6.144 Mhz.....\$2.49
1.000 Mhz.....\$4.00	6.5530 Mhz.....\$2.49
1.8432 Mhz.....\$2.49	8.0000 Mhz.....\$2.49
2.000 Mhz.....\$2.49	9.542 Mhz.....\$2.49
2.0971 Mhz.....\$2.95	10.000 Mhz.....\$2.49
2.4576 Mhz.....\$2.95	10.7386 Mhz.....\$2.49
3.000 Mhz.....\$1.49	12.000 Mhz.....\$2.49
3.2768 Mhz.....\$2.95	14.318 Mhz.....\$2.49
3.579 Mhz.....\$1.00	15.000 Mhz.....\$2.49
4.000 Mhz.....\$2.49	16.000 Mhz.....\$2.49
4.032 Mhz.....\$2.49	17.43 Mhz.....\$2.49
4.433 Mhz.....\$2.49	18.000 Mhz.....\$2.49
4.9142 Mhz.....\$2.49	18.432 Mhz.....\$2.49
5.000 Mhz.....\$2.49	20.000 Mhz.....\$2.49
5.068 Mhz.....\$2.49	22.184 Mhz.....\$2.49
5.185 Mhz.....\$2.49	32.000 Mhz.....\$2.49
5.7143 Mhz.....\$2.49	40.000 Mhz.....\$2.49
6.000 Mhz.....\$2.49	

OSCILLATORS

1.000 Mhz.....\$6.95	8.000 Mhz.....\$6.95
1.8432 Mhz.....\$6.95	10.00 Mhz.....\$6.95
2.000 Mhz.....\$6.95	12.00 Mhz.....\$6.95
2.4576 Mhz.....\$6.95	14.318 Mhz.....\$6.95
4.000 Mhz.....\$6.95	15.000 Mhz.....\$6.95
4.032 Mhz.....\$6.95	16.00 Mhz.....\$6.95
5.0688 Mhz.....\$6.95	17.43 Mhz.....\$6.95
6.00 Mhz.....\$6.95	18.432 Mhz.....\$6.95
6.144 Mhz.....\$6.95	20.000 Mhz.....\$6.95

IC SOCKETS

We have the AMP style double sided wide open aperture for easy insertion, all at 1c per pin for 1-99 Pieces. 0.85c per pin above that. Wire Wrap are as priced.

# of PINS	ST	ST	WW	WW
8	1-99	100+	1-99	100+
14	8c	7c	50c	48c
16	14c	12c	60c	50c
18	16c	12c	60c	54c
20	18c	17c	90c	77c
22	20c	17c	90c	84c
24	22c	19c	\$1.60	\$1.30
28	24c	23c	\$1.25	\$1.10
40	28c	29c	\$1.50	\$1.39
	40c	35c	\$1.75	\$1.66

ASCII KEYBOARD

8048

5v only



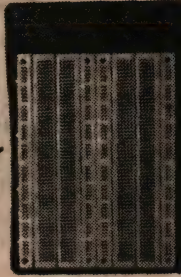
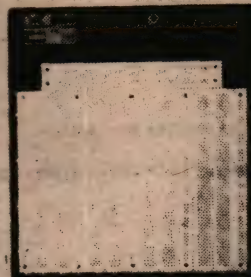
A great deal, this brand new ASCII keyboard came from AES DATA, one of the largest makers of word processors in the world. A novel circuit generates both serial and parallel ASCII out allowing use on both APPLE and IBM styles of system. The unit runs on +5V only, has Hall effect keyswitches and uses an 8048 micro for operation. The sculptured keytops are arranged in typewriter style for quick learning and are an attractive light beige color. We got them for 5% of the \$169.00 that AES paid and so we can sell them dirt cheap and still make money. Completely new with 20 pin ribbon IDC connector and pinout for easy interfacing. **\$19.95**

Solderless Breadboard

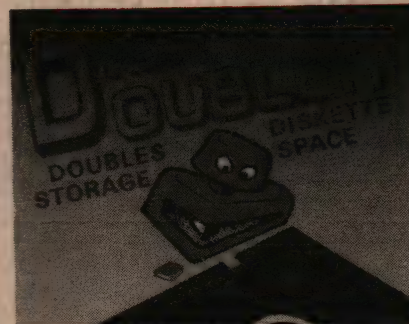


Solderless prototyping boards are the best way to quickly breadboard up a circuit. The holes are made especially for IC's, resistors, and other small parts with 22-28 gage wire leads, takes WW pins too.

WB-106 **\$39.95**
3 IC strips, 5 power strips
4 Binding posts, Aluminum plate
WB-104-3 **\$24.95**
2 IC strips, 1 power strip
2 Binding posts, aluminum plate
WB-108 **\$49.95**
4 IC strips, 7 power strips
4 Binding posts, aluminum plate
WB-104 **\$27.95**
2 IC strips, 4 power strips
2 Binding posts, aluminum plate.



Disc Doubler

DISC DOUBLER..... **\$5.95**

ASSORTED PARTS

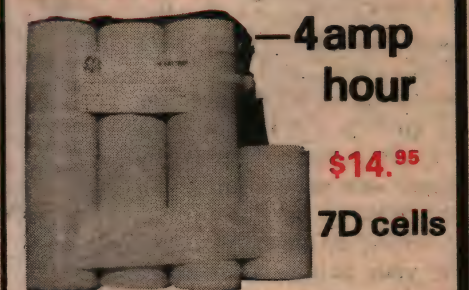
100Ns delay line.....\$6.95
7 Ns delay line.....\$9.95
62 Pin edge conn.....\$2.00
50 Pin edge conn.....\$1.50
5 Pin DIN conn.....\$1.50
8 Pos DIP switch.....\$1.00
MEGABOARD reset Sw.....\$2.49
4.7Kx6 SIP.....\$0.69
4.7Kx8 SIP.....\$0.99
1Kx7 SIP.....\$0.59
1Kx8 SIP.....\$0.59
2.2Kx9SIP.....\$0.79
10Kx9 SIP.....\$0.79
33 Ohm DIP.....\$1.49
4.7K DIP.....\$1.49
0.1 Mono caps, 0.2".....\$0.10
0.1 Mono caps, 0.1".....\$0.12
50 Pf trimcap.....\$0.75
2-3" speaker.....\$1.50
RCA jack, PC type.....\$0.49
APPLE power set.....\$3.50
6 pin row power set.....\$1.49
square power set.....\$2.49
MPSA13.....\$0.49
2N4258.....\$0.75
2N3904.....\$0.29
2N3906.....\$0.29
2N2222.....\$0.35
2N2907.....\$0.39
MPSU51.....\$1.00

CENTRONICS RIBBON CABLE IDC CON.



Ribbon Cable Type Centronics and DB-25 Connectors
DB-25 Male **\$2.49** DB-25 Female **\$2.49**
Centronics Male **\$2.95** Centronics Female **\$2.95**
HURRY WE WILL SOON BE SOLD OUT AT THESE PRICES!

NICAD PACK 8.2 volt



—4 amp hour
\$14.95
7D cells

APPLE[®] BARE PC BOARDS PRICE SLASH!

NEW LOWER PRICES

16K Memory card, CPM compatible.....	\$8.00
128K Memory card, Saturn compatible.....	\$9.95
128K, APPLE IIe Ext 80 Column card.....	\$9.95
ROM card for 6 EPROMS.....	\$8.00
DISC Controller Std type.....	\$8.00
DISC Controller 13/16 Sector.....	\$8.00
80 Column Videx compatible.....	\$8.00
80 Column Videx compatible with softswitch.....	\$9.95
Z-80, The famous CPM card.....	\$9.95
Z-80+, The famous APPLECARD, 64K RAM.....	\$14.95
ON IT.....	\$14.95
128K RAM expansion for APPLACARD.....	\$14.95
RS-232 Serial data card, printer protocol.....	\$8.00
Communication card, Modem protocol.....	\$8.00
SUPER SERIAL Card, Printer and Modem Pr.....	\$9.95
MODEM Card, SSM compatible.....	\$14.95
EPROM PROGRAMMER Card, APARAT Comp.....	\$14.95
SAM Talkin card.....	\$8.00
COPYCAT CARD, WILD compatible.....	\$8.00
TIME card, TIME II compatible.....	\$9.95
TIME card, THUNDER compatible.....	\$14.95
MUSIC card 9 voice G1 chip.....	\$9.95
GRAPHIC DUMP card, GRAPPLER compatible.....	\$11.95
SPRITE ACTION GRAPHICS card for TI chip.....	\$11.95
LARGE APPLE PROTOTYPE.....	\$12.95
SHORT APPLE PROTOTYPE.....	\$9.95
RGB CARD for APPLE, TTL output.....	\$18.95
RGB card Mapping PROM.....	\$9.95
DISC PROMS, set of two.....	\$11.95
80 Column EPROMS, Set of 3.....	\$16.95
Z-80+ EPROM.....	\$9.95
MODEM EPROM.....	\$9.95
COPY EPROM.....	\$9.95
GRAPHIC DUMP EPROM.....	\$9.95

Corresponding CoCo Continued from page 188

the rest. The letter format will print your text in letter format style, even if it's several pages long, while the manuscript format will give you double line spacing, and print as many pages as you like.

If you expect to run out of memory, which could happen when writing long reports or articles, just "Infile" several files, and "merge" them into one file on disk. Then when it comes time to print the final draft, the combined files will be printed out.

While we are on the subject of memory, if you are trying to run a Basic09 program while in the programming module, you may get a "memory full," or #207 error when using the patch descriptor method of printing format.

Those using the Shell will "usually" run. If either proves to be a problem, all you have to do is pack the program temporarily before running it. However, if you use this method, be SURE that you SAVE the file first, or any editing you've done will be lost. Remember, a packed program may not be listed, even from the programming module.

Once you've entered the programs, and have them packed into the execution directory, simply entering their name will activate them. Enter "CoCoCorr," and you will be prompted for all the necessary parameters. The printer will then be formatted, and your file on disk printed in the format you request.

Setting up a path descriptor for your printer is relatively simple, and is illustrated in CoCoCorr listing starting at line \$00C7. First the descriptor "path" is given a BYTE value, and the "device" is given a string length value of 3 at line \$0119. Next the device is identified with the printer's path descriptor "/p" or "/pl" in lines \$0317 thru \$0340, depending on whether you are running parallel or serial to your printer.

Whenever a device is written to, or read from it is necessary to OPEN and CLOSE a path to it. Thus, the next step is to include the following line, "OPEN #path, device:WRITE." This will open a path to the printer, and let you "write" to it. Since the "path" is opened, it will require a "close" statement in any called procedure, or for insurance sake, you could end the CoCoCorr procedure with a close statement.

That's all there is to it.

It was fun writing these short programs, and I learned much about Basic09 while debugging them. Why not make them do more? Well,

```

023B PUT #outpath,character
0245
0246 IF character=CHR$(13) THEN
0253 GOTO 50
0257 ENDIF
0259
025A IF character=CHR$(9) THEN
0268 GOTO 200
026C ENDIF
026E
026F 140 NEXT count
027D
027E 200 CLOSE #outpath
PROCEDURE getfile
0000
0001 (* file opener
000F
0010 PARAM tipe,name,title,brand,device:STRING; linum:
INTEGER; path:BYTE; form:BOOLEAN
0039
003A DIM disk:BYTE
0041 DIM diskpath:STRING[4]
004D DIM cr,ffeed:STRING[1]
005D
005E diskpath="/D0/"
0069 cr=CHR$(13)
0071 ffeed=CHR$(12)
0079
007A OPEN #disk,diskpath+name:READ
008A
008B RUN doline(tipe,title,brand,device,linum,disk,path,
form)
008B
008C CLOSE #disk
008F
008I END
PROCEDURE doline
0000
0001 (* get a line from disk
0018
0019 PARAM tipe,title,brand,device:STRING; linum:INTEGER;
disk,path:BYTE; form:BOOLEAN
0042
0043 DIM line:STRING[80]
004F DIM cr,ffeed:STRING[1]
005F DIM pagnum,endpag:INTEGER
006A
006B cr=CHR$(13)
0073 ffeed=CHR$(12)
007B pagnum=0
0082 endpag=58
0089
008A OPEN #path,device:WRITE
0096
0097 REPEAT
0099
009A READ #disk,line
00A4 RUN printline(tipe,title,brand,line,linum,pagnum,
path,form)
00D1
00D2 UNTIL EOF(#disk)
00DB IF EOF(#disk) THEN
00E5 PRINT #path,ffeed
00EF ENDIF
00F1
00F2 CLOSE #path
00F8
00FA END
PROCEDURE printline
0000
0001 (* send line to printer
0018
0019 PARAM tipe,title,brand,device:STRING; line:STRING[80];
linum,pagnum:INTEGER; path:BYTE; form:BOOLEAN
0049
004A DIM cr,lfeed,ffeed,tabfeed:STRING[1]
0062 DIM endpag:INTEGER
0069
006A cr=CHR$(13)
0072 lfeed=CHR$(10)
007A ffeed=CHR$(12)
0082 tabfeed=CHR$(11)
008A
008B IF form=TRUE AND brand="gemini" THEN
00A3 endpag=58
00AA ELSE
00AE endpag=64
00B5 ENDIF
00B7 IF form=TRUE AND brand="powertype" THEN
00D2 endpag=58
00D9 ELSE
00DD endpag=52
00E4 ENDIF
00E6
00E7 IF form=FALSE THEN
00F2 GOTO 100
00F6 ENDIF
00F8
00F9 IF linum>=endpag THEN
0106 linum=0
010D pagnum=pagnum+1
0118 PRINT #path,ffeed
0122 RUN header(tipe,title,pagnum,path)
013B linum=3
0142 GOTO 100
0146 ELSE
014A IF linum=0 THEN
0156 pagnum=1
015D RUN header(tipe,title,pagnum,path)
0176 linum=3
017D GOTO 100
0181 ELSE
0185 100 PRINT #path,line
0192 ENDIF \ ENDIF
0196
0197 IF form=TRUE THEN
01A2 PRINT #path,cr
01AC linum=linum+2
01B7 ELSE
01BB IF form=FALSE THEN
01C6 linum=linum+1
01D1
01D3 ENDIF
01D5
01D6 IF form=FALSE AND linum>endpag THEN
01E9 PRINT #path,ffeed
01F3 PRINT #path,tabfeed
01FD linum=6
0204 ENDIF
0206
0207 END
0209
PROCEDURE header
0000
0001 (* print top of page headers
001D
001E PARAM tipe,title:STRING; pagnum:INTEGER; path:BYTE
0035
0036 REM dimension the id string to your name length
0064
0065 DIM pag:STRING[5]
0071 DIM id:STRING
0078 DIM cr:STRING[1]
0084
0085 pag="Page "
0091
0092 REM your name goes here
00A8
00A9 id="your name"
00B9 cr=CHR$(13)
00C1
00C2 REM skip to header line
00D8
00D9 IF pagnum=1 THEN
00E5 PRINT #path,cr
00EF ENDIF
00F1
00F2 IF tipe="pica" THEN
0102 GOTO 100
0106 ELSE
010A IF tipe="elite" THEN
011B GOTO 200
011F ENDIF \ ENDIF
0123
0124 REM change length of using value
0143 REM to suit the length of your name
0165
0166 100 PRINT #path,id;
0174 PRINT #path USING "s46^",title;
0186 PRINT #path,pag;
0191 PRINT #path USING "i4<",pagnum
01A1 PRINT #path,cr
01AB PRINT #path,cr
01B5 END
01B7
01B8
01B9 200 PRINT #path,id;
01C7 PRINT #path USING "s54^",title;
01D9 PRINT #path,pag;
01E4 PRINT #path USING "i4<",pagnum
01F4 PRINT #path,cr
01FE PRINT #path,cr
0208
0209 END
PROCEDURE letter_head
0000
0001 (* letter formatter for Gemini and Powertype
002D
002E PARAM tipe,name,brand,device:STRING; path:BYTE;
form:BOOLEAN
004D
004E DIM disk:BYTE
0055 DIM diskpath:STRING[4]
0061 DIM date:STRING[12]
006D DIM who,to,where,to,attn:STRING[48]
0081 DIM city:STRING[36]
008D DIM state:STRING[20]
0099 DIM zip:STRING[5]
00A5 DIM cr,tabfeed,ans:STRING[1]
00B9 DIM linum:INTEGER
00C0
00C1 linum=0
00C8 cr=CHR$(13)
00D0 tabfeed=CHR$(11)
00D8 diskpath="/D0/"
00E3
00E4 OPEN #path,device:WRITE
00F0
00F1 IF brand="powertype" THEN
0106 GOTO 200
010A ENDIF
010C
010D IF name="" THEN
0119 GOTO 300
011D ENDIF
011F
0120 REM do Gemini letterhead
0137
0138 PRINT #path,cr
0142 PRINT #path,cr
014C PRINT #path,cr
0156
0157 REM turn on double width emphasized
01A5 PRINT #path,CHR$(27); CHR$(53);
01B4 PRINT #path,CHR$(27); CHR$(69);
01C3 PRINT #path,CHR$(27); CHR$(87); CHR$(1);
01D6 PRINT #path USING "s32^","your name or title"
01F8
01F9 REM turn off double width
0211
0212 PRINT #path,CHR$(27); CHR$(87); CHR$(0);
0225 PRINT #path,cr
022F PRINT #path USING "s64^","your address, city, etc"
0256 PRINT #path USING "s64^","your phone"
0270
0271 IF tipe="elite" THEN
0282 PRINT #path,CHR$(27); CHR$(66); CHR$(2);
0295 ENDIF
0297

```

Continued on page 198

Toll Free Order Line
Order Line: 1-800-223-EPIC
9AM-6PM CST

EPIC SALES, INC.

ESTABLISHED 1979

132 Walnut-Plano Center
 Garland, Texas 75042

EPIC SALES WINCHESTER SUB SYSTEMS Featuring Drives By Seagate



	Seagate ST-212 1/2 High (Low Power)		Seagate ST-225 1/2 High		Rodime RO-203E Full High		Irwin 110 Tape Backup	
Type of System	10 MEG Internal	10 MEG External	20 MEG Internal	20 MEG External	33 MEG Internal	33 MEG External	W/ Ext. System	External
IBM-PC & COMPATIBLES	\$599	\$799	\$699	\$899	\$1249	\$1449	\$595	\$695
TI-PC (ZOBEX)	\$699	\$899	\$799	\$999	\$1399	\$1599	\$595	\$695
TI-PC West. Auto.	\$999	\$1199	\$1099	\$1249	N/A	\$1849	\$595	\$695
APPLE	N/A	\$949	N/A	\$1049	N/A	\$1599	N/A	N/A
XEROX 820 & KAYPO	N/A	\$899	N/A	\$999	N/A	N/A	N/A	N/A
Z-100	\$849	\$1049	\$949	\$1149	N/A	N/A	N/A	N/A

COMPATABLE PC'S ARE: COMPAQ, AT&T PC, TELEVIDEO 1605, TELEVIDEO PORTABLE, COLUMBIA PC, TANDY 1000, CORONA, LEADING EDGE, SPERRY, ZENETH 150 & OTHERS (CALL FOR OTHERS).

● SATISFACTION GUARANTEED:

Order your EPIC Winchester System now test it for 30days, if not satisfied, return for immediate refund!

• Call for quote on larger size systems •

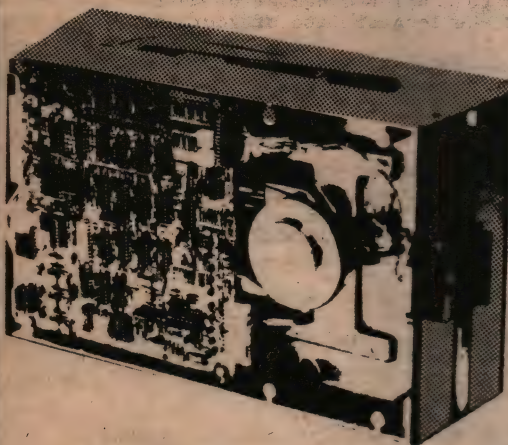
● 1-YEAR FULL WARRANTY

Every unit is thoroughly tested before shipping and our warranty includes both parts and labor.

● TECH SERVICE HOTLINE

If you have a question or a problem Call our service technicians.

8" FLOPPY DRIVES



DSDD 8" Floppy Drives
 [Shugart 850 Compatible]

\$185

120 Day Warranty

PC ENHANCEMENT PRODUCTS

STB GRAPHIX + II	\$359
STB RIO + II (64K)	\$259
Keytronics 5151 Keyboard	\$225
Texan 425 color monitor	\$499
Western Automation Seeker 1	\$375

WINCHESTER DRIVES & CONTROLLERS

Seagate ST-212 10meg.	\$399
Seagate ST-225 20meg.	\$499
Rodime 203E 33meg.	\$1069
Rodime 204E 44meg.	\$1269
DTC 5150BX IBM Winchester Controller	\$249
ZOBEX TI PC Winchester Controller	\$375
XEBEC 1410 Controller	\$249
Apple Host (Xebec)	\$125
S-100 Host (Xebec)	\$150
Software	\$35
Xerox & Bigboard Host (Epic)	\$95
Western Digital 1002-05HDO	\$295

EXPANSION CHASSIS FOR IBM-PC



- 6 Slots
- Includes P/S Cabels & Transporter Card

\$549

Tech. Info. (214)272-5724

TOLL FREE ORDER LINE! 1-800-223-3742

Store Hours:

TERMS: Master Card, Visa, American Express add 3% service charge. Allow 10 days for checks.
 \$4.00 Minimum UPS charge. \$1.90 for COD. Texas Residents 6 1/8% Sales Tax.

9-6 M-F...9-1 Sat.

Corresponding CoCo
Continued from page 196
let's leave that up to you.
Enjoy!

Author's note: The PBJ products mentioned in this article are available from PBJ, Inc., P.O. Box 813, No. Bergen, NJ (201) 330-1898. Star Micronics printers are available from several advertisers in Computer Shopper.

A disk including the above procedures in both source and icode is available for \$10, if you don't want to do the typing, and for \$15 you can have the same programs "personalized," but I'll need your complete name, address, phone, etc.

Send inquiries to Fred Freel, 7438 Baird Avenue, Reseda, CA 91335 (818) 346-0464. Questions should include a stamped, addressed envelope.

A new desk management program with more features than GnuLink, Homebase, Poly Windows, and Spring- combined!

PC-DESK

Features:

- On-Screen Clock
- Calendar/Reminder
- Word Processor
- Mail Merge
- Letter File
- Name and Address Files
- Label Printing
- Envelope Addressing
- Monochrome or Color
- Four Variables in Letters
- Auto-Dial
- Calculator
- Phone Directory
- Background Operation
- Memory Partitioning
- Cut and Paste
- Easy Menu Operation
- Sort and Select
- Memo and Letter Printing
- Repetitive Label Printing
- Rolodex Card Printer
- Automatic Invoices
- Automatic Letterhead

Requires:

- IBM-PC, AT, XT, Jr., or compatible
- 64K for basic Program
- 224K for partitioning
- Printer, DS/DD disk
- drive, MS-DOS 2.0
- Memory Partitioning
- Modem required to use Auto-Dial feature.

PC-DESK will maintain names and addresses in a database which you can display, search, sort, select, scroll through, and amend or delete with ease. Display a record and send a letter with the press of a command key, print an envelope, transfer the record to another file, call, make a note, or edit. Send group letters individually typed, with personalized text. Print labels, envelopes, letterhead, stickers, phone directories.

PC-DESK has a full-featured word processor, printing calculator, and a calendar/reminder that alerts you when a due date has arrived.

Best of all, PC-DESK works in its own memory partition, leaving the rest of your computer to do anything you want and blink back and forth between tasks, moving information, cutting and pasting. Like having two computers in one!

PC-DESK comes with an on-disk Operations Manual, Tutorial and Installation Instructions. It is not copy protected and will work even more efficiently on a hard disk.

PC-DESK

\$49 + \$2 shipping

Virginia Residents add 4% Sales Tax

Software Studios

8516 Sugarbush
Annandale, Virginia 22003
(703) 878-2339

Phone orders using Visa or Mastercard only
Versions for TI-Professional Computer and IBM-PC Jr. also available without memory partitioning.

Continued from page 196

```

0298 100 PRINT
029D PRINT " date (spell out month)"
02C8 INPUT " ",date
02DF
02E0 IF tipe="elite" THEN
02F1 PRINT #path USING "s72^",date+", 1985"
030B ELSE
030F PRINT #path USING "s64^",date+", 1985"
0329 ENDIF
032B
032C IF brand="powertype" THEN
0341 PRINT #path,cr
034B PRINT #path,cr
0355 PRINT #path,cr
035F PRINT #path,cr
0369 ELSE
036D PRINT #path,tabfeed
0377 ENDIF
0379
037A PRINT
037C INPUT " Addressee ",whoto
03A0 PRINT
03A2 INPUT " Street ",whereto
03C6 PRINT
03C8 INPUT " City ",city
03EC PRINT
03EE INPUT " State ",state
0412 PRINT
0414 INPUT " Zip code ",zip
0438
0439 PRINT #path,whoto
0443 PRINT #path,whereto
044D PRINT #path,city+", "+state+" "+zip
0468 IF brand="powertype" THEN
047D PRINT #path,cr
0487 PRINT #path,cr
0491 PRINT #path,cr
049B PRINT #path,cr
04A5 ELSE
04A9 PRINT #path,tabfeed
04B3 ENDIF
04B5
04B6 PRINT
04B8 INPUT " to someone's attention ",ans
04E8 IF ans="N" OR ans="n" THEN
04FD GOTO 150
0501 ELSE
0505 PRINT
0507 INPUT " who's ",attn
052B PRINT #path,"Attn: "; attn
053F ENDIF
0541
0542 IF brand="powertype" THEN
0557 PRINT #path,cr
0561 PRINT #path,cr
056B PRINT #path,cr
0575 PRINT #path,cr
057F linum=30
0586 ELSE
058A PRINT #path,tabfeed
0594 linum=36
059B ENDIF
059D
059E 150 PRINT #path,cr
05AB IF brand="gemini" THEN
05BD linum=30
05C4 ELSE
05C8 linum=24
05CF ENDIF
05D1
05D2 CLOSE #path
05D8
05D9 RUN getfile(tipe,name,title,brand,device,linum,path,
form)
0606
0607 PRINT
0609 INPUT "Want to do an envelope? ",ans
0629 IF ans="Y" OR ans="y" THEN
063E PRINT
0640 PRINT "Ready printer. If using Gemini,"
0664 PRINT
0666 PRINT "you may need to add a sheet of"
0688 PRINT
068A PRINT "paper under the envelope's flap"
06AD PRINT
06AF PRINT "to prevent the 'paper out' function"
06D7 PRINT
06D9 PRINT "from aborting your printout."
06F9
06FA REM pause before running envelope
071A
071B FOR wait=1 TO 2000
072E NEXT wait
0739
073A RUN envelope(brand,device)
0749 ELSE
074D END
074F ENDIF
0751
0752 REM do PowerType letterhead
076C
076D 200 PRINT #path,cr
077A PRINT #path,cr
0784 PRINT #path,cr
078E
078F REM turn on bold print
07A4
07A5 PRINT #path,CHR$(27); CHR$(71);
07B4
07B5 IF tipe="pica" THEN
07C5 PRINT #path USING "s64^",your name or title"
07E7 ELSE
07EB PRINT #path USING "s72^",your name or title"
080D ENDIF
080F
080F REM turn off bold print
0826
0827 PRINT #path,CHR$(27); CHR$(72);
0836 PRINT #path,cr
0840 IF tipe="pica" THEN
0850 PRINT #path USING "s64^",your address, city,

```

```

state & zip"
087F PRINT #path,cr
0889 PRINT #path USING "s64^",your phone"
08A3 ELSE
08A7 PRINT #path USING "s72^",your address, city,
state & zip"
08D6 PRINT #path,cr
08E0 PRINT #path USING "s72^",your phone"
08FA ENDIF
08FC PRINT #path,cr
0906 PRINT #path,cr
0910 PRINT #path,cr
091A PRINT #path,cr
0924 GOTO 100
0928
0929 REM do individual letterhead
0944
0945 300 PRINT #path,cr
0952 PRINT #path,cr
095C PRINT #path,cr
0966
0967 REM turn on double width
09B5 PRINT #path,CHR$(27); CHR$(64);
09C4 PRINT #path,CHR$(27); CHR$(69);
09D3 PRINT #path,CHR$(27); CHR$(87); CHR$(1);
09E6 PRINT #path USING "s40^",your name or title"
0A08
0A09 REM turn off double width
0A21
0A22 PRINT #path,CHR$(27); CHR$(87); CHR$(0);
0A35 PRINT #path,cr
0A3F PRINT #path USING "s80^",your address, city, etc"
0A66 PRINT #path USING "s80^",your phone"
0A80
0A81 CLOSE #path
0A87 END

```

PROCEDURE envelope

```

0000
0001 PARAM brand,device:STRING
000C
000D DIM path:BYTE
0014 DIM ans:STRING[1]
0020 DIM whoto,whereto,city:STRING[40]
0034 DIM state:STRING[20]
0040 DIM zip:STRING[5]
004C
004D OPEN #path,device:WRITE
0059
005A REM software reset
006B
006C PRINT #path,CHR$(27); CHR$(64);
007B
007C PRINT
007E PRINT "Insert envelope in"
0094 PRINT "printer positioning"
00AB PRINT "left margin to left"
00C2 PRINT "of printhead, top"
00D7 PRINT "margin just above."
00ED PRINT
00EF PRINT "DO NOT use paper bale."
0109 PRINT
010B INPUT "Ready? ",ans
011A IF ans="Y" OR ans="y" THEN
012F
0130 REM turn on Gemini emphasized type
0151 REM or PowerType shadow print
016D
016E PRINT #path,CHR$(27); CHR$(69);
017D REM optional syntax
018F (*
0192 (* shell "display lb 45 >/p"
01AE (*
01B1
01B2 REM you must change the using value below
01DA REM to equal the number of characters in
0201 REM the longest line of your address plus six
022D
022E PRINT #path USING "s24^",your name"
0247 PRINT #path USING "s24^",your street"
0262 PRINT #path USING "s24^",your city/state"
0281 ENDIF
0283
0284 INPUT "Addressee: ",whoto
0297 INPUT "Street: ",whereto
02AA INPUT "City: ",city
02BD INPUT "State: ",state
02D0 INPUT "zip code: ",zip
02E3
02E4 REM tab down to addressee
02EC
02FD IF brand="powertype" THEN
0312 PRINT #path,CHR$(13); CHR$(10); CHR$(10); CHR$(10);
0329 PRINT #path,CHR$(10); CHR$(10); CHR$(10); CHR$(10);
CHR$(0)
0343 ELSE
0347 PRINT #path,CHR$(11); CHR$(11); CHR$(0)
0359 REM optional syntax
036B (*
036E (* shell "display b b 0 >/p"
038A (*
038D ENDIF
038F
0390 PRINT #path,TAB(30); whoto
039E PRINT #path,TAB(30); whereto
03AC PRINT #path,TAB(30); city; ", "
03C0 PRINT #path,state; " "; zip
03D2
03D3 REM eject envelope
03E4
03E5 PRINT #path,CHR$(12);
03F0 REM optional syntax
0402 (*
0405 (* shell "display c >/p"
041D (*
0420
0421 CLOSE #path
0427 END
0429

```


DYNAMIC RAMS

41256 256KX1 (120ns) \$3.15
 QTY. 1 (150ns) \$2.50
128K 128KX1 (150ns) \$4.25
 PIGGY BACK

4164 64KX1 (120ns) \$0.75
 (150ns) \$0.65
 (200ns) \$0.65

STATIC RAMS

6264 LP-12 (120ns) \$5.50
 (8K X 8) LP-15 (150ns) \$4.50

6116 LP-2 (120ns) \$2.15
 (2K X 8) LP-3 (150ns) \$1.75

5514 APL-2 (200ns) \$2.95
 (1K X 4) AP-2 (200ns) \$2.50
 APL-3 (300ns) \$2.25
 AP-3 (300ns) \$2.15

E. PROMS

27C256 (250ns) \$12.95
27256 (250ns) \$7.25
27128 (250ns) \$2.75
27C64 (250ns) \$4.25
2764 (200ns) \$2.75
 (250ns) \$1.75

2732A (200ns) \$2.95
 (250ns) \$1.80
 (300ns) \$1.80
 * A version, programming is 21 volts
2732 (450ns) \$2.85
2532 (450ns) \$4.95
2716 (450ns) \$2.15

8000's

7201 \$7.25	8080 \$8.75	8237A-5 \$7.00	8279-5 \$5.95
765A \$7.25	8088-2 \$15.75	82C43 \$4.50	8282 \$4.95
7220D-1 \$33.50	81C55 \$4.95	8243 \$3.50	8283 \$4.95
8031A \$9.75	8155-2 \$5.95	8251A \$3.50	8284A \$4.50
80C35 \$5.95	8155 \$3.25	8253-5 \$3.75	8286 \$4.95
8035 \$2.75	8156-2 \$6.95	82C53-5 \$5.95	8287 \$4.95
80C39 \$4.50	8212 \$1.60	8255A-5 \$3.75	8288 \$6.95
8039 \$3.75	8214 \$2.95	82C55A-5 \$5.95	8289 \$19.00
8080A \$2.95	8216 \$1.60	8257-5 \$3.25	8741A \$12.25
80C85A \$4.95	8224 \$2.25	8259A-2 \$5.95	8748 \$9.00
8085A-2 \$5.75	8226 \$1.65	8156 \$4.50	8749H \$12.00
8085A \$3.95	8228 \$3.20	8259A \$4.95	8755A \$16.75

MATH COPROCESSORS

8087-2 \$105.00
 8087 (-3) \$115.00
 80287 (-3) \$185.00

PRINTERS AND KEYBOARDS

* MADE IN JAPAN, HIGH QUALITY PRODUCT WITH ONE YEAR GUARANTEE.

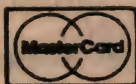
SX-100 cps Printer	Special Price!!!	\$189.00 each
SX-130 cps Printer	Special Price!!!	\$199.00 each (IBM Compatible)
SFK-201B Keyboard	(Capacity Type)	\$119.00 each (IBM Compatible)

I.C. EXPRESS

15358 Valley Boulevard, City of Industry, CA 91746
 Phone: 818-369-2688 (Mon. - Fri., 8-5)

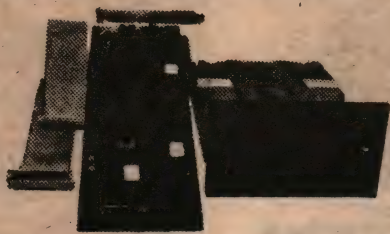
800-892-8889 ORDER TOLL FREE 800-882-8181
 Outside California Inside California

CALL FOR CURRENT PRICES & VOLUME DISCOUNTS. Price shown for UPS COD Cash. Mastercard/VISA Add 3% More.
 Prices are subject to change. Minimum order \$10.00. California residents must add 6.5% sales tax.
 SHIPPING & HANDLING: UPS Ground \$5.00, UPS Air \$7.00, (under 1 lb.)
 ALL MERCHANDISE IS 100% GUARANTEED



IBM COMPATIBLE COMPUTER PRODUCTS

HARD DISK DRIVES



10 MEG 1/2 High Shugart SA712\$275
NCL Controller\$139.00
Seagate 20 Meg 1/2 High\$425
(Dealer Pricing On Seagates Avail.)

SAMSUNG MONITORS

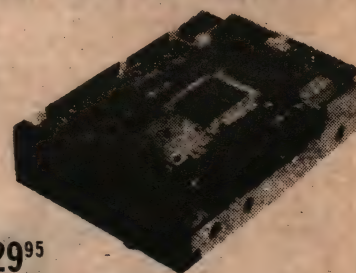


Highest
Quality
Lowest —
Price

Cat. #	Description	Price
1255HA	12" Composite Amber	\$74.95
1255HG	12" Composite Green	\$72.95
1254A	12" Monochrome TTL Amber	\$89.95
12546	12" Monochrome TTL Green	\$87.99

WE'VE GOT THE NEW QUMETRAK 142 LX DRIVES

- Double Sided Double Density
- 1/2 Height • 48 TPI
- New Quiet Operation
- IBM Compatible
- New Front Panel Design



\$69⁹⁵ Each 2/\$129⁹⁵

Dealer Inquiries Invited

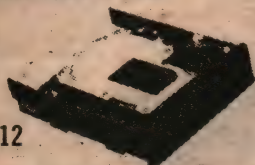


MICROCOMPUTER MEMORIES, INC.

THE LATEST IN HIGH TECHNOLOGY

3.5" Ridged Winchester Drive
Withstands 100Gs of Shock

10 MEG
\$325⁰⁰



BM212

3.5" ADVANTAGES

The new Microcomputer Memories 3.5" Winchester has several inherent advantages over physically larger drives, due to its design, reduced size and weight and lower mass.

SUMMARY OF BENEFITS

- Smaller Footprint
- Less Weight
- Greater Shock Resistance
- Lower Power Requirement
- Less Heat Generation
- ST 412 Interface
- Common Parts
- Space for Extra Shock Protection
- 12,000 Hour MTBF

1 YEAR WARRANTY



7.5 MHZ Speed

turbo

- 8088 2 high speed on board CPU
- 8 slots
- 640K Max. Mem.
- IBM Footprint
- Operating speed keyboard controlled

IBM
Compatible
Mother
Board

\$365 w/64K



A New Simplified IBM/XT Motherboard

New Bios—Eliminates Many Of The Problems In The DTC Mega-Bios
No Time Delays Req'd—All time delays replaced by low cost TTL IC's.
No Special Mapping Proms or Pals Required.
On Board Floppy Disc Controller—Up To 4 Drives.
On Board Serial & Parallel Ports
Board Will Mount in IBM Footprint.
Max. 512K Memory On Board

MADE
IN
USA!

NRC-88 Easy Board - All Passive Components, Sockets
& Connectors, Soldered in Place\$179
Kit of All IC's w/128K\$155
NRC-88 Assembled & Tested w/128K\$395

ACS-1000 Single Board Computer

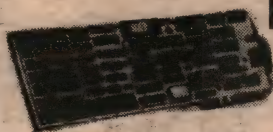


\$595.00

- Built-in Floppy Disk Controller
- Built-in SASI Hard Disk Interface
- 2 Serial Ports — 1 Parallel Port
- Low Cost Modem Interface
- Real-time Clock
- Up to 1 MB On-Board Memory

SPEED UP YOUR IBM OR COMPATIBLE BY 33%

New Y-20 CPU Mfg. by NEC replaces the 8088 in your system. No compatibility problem. New on market so order early before high demand makes these scarce!!! \$24.50



EPROM PROGRAMMER

FOR IBM & COMPATIBLES
Mounts In Your IBM PC

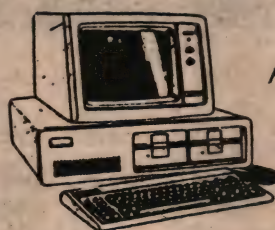
2716-27256

\$129.95

NEW TEXAS XT BOARD (Bigger & Faster)

- 256K Standard (640K Max)
- 6.77 MHz Operating Speed
- Completely IBM Compatible
- 8 I/O Slots • IBM Footprint

\$225



XT-TURBO

A NO-NONSENSE FULL BLOWN
BUSINESS COMPUTER.

- Dual Operating Speeds (5&8MHz)
- 640K Memory on Motherboard
- IBM Look-A-Like Case, Keyboard
- 10 MEG Hard Disc Drive
- 135 Watt Power Supply
- Serial and Parallel Ports
- Clock/Calendar
- Color Video Card
- Composite Monitors
- Runs MS-DOS, PC-DOS, & CP/M 86

\$1600⁰⁰

100% IBM Compatible

SPECIALS

Joystick For IBM PC/XT\$29.95
Printer Stands\$5.95

HARD TO GET CLONE PARTS FOR IBM COMPATIBLES

62 pin edge conn	\$2.50
100nsec delay line	\$6.00
5pin kybd. conn	\$0.85
12pos. pwr. conn	\$0.65
14.31 8mhz crystal	\$1.25
8pos. dip switch	\$0.75
Rt. angle reset sw	\$1.50
Sngl. & dbl. hdr. kit	\$3.00
4.7k sip. res.	\$0.75
4.7k dip. res.	\$0.85
8.2k dip. res.	\$0.85
330hm dip res.	\$0.75
8088	\$9.00
8087	\$125.00
8237A-5	\$8.00
8253A-5	\$4.50
8255A	\$4.50
8259A	\$5.50
8284A	\$4.50
8288	\$10.00
4164-20	\$0.70
LS322A	\$2.50
Bios ROM	\$19.00
Taiwan Basic	\$39.95



EXTERNAL HARD
DISK CABINET
w/POWER SUPPLY
\$99⁰⁰

MITSUBISHI
96TPI QUAD
DRIVES \$89.50

4164
RAM
CHIPS
.45¢

TANDOM
100-2 FULL —
HGT DSD
40 TRACK\$79.95

NEW HAYES
SMART MODEM COMPATIBLE
Auto Answer/Auto Dial
1200/300 Baud
External — \$189.00

LOLIR ELECTRONICS CORP.

13933 N. CENTRAL EXPRESSWAY
SUITE 212
DALLAS, TX 75243

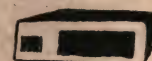
214-234-8032 — 214-234-8056



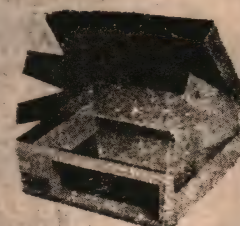
TERMS: Check or Money Order.
COD's Add \$1.90. TX Res. add
6% Tax. Please add \$3.50 shipping.
All out of stock items will
be refunded.



RUN OUT OF SLOTS? BUILD YOUR OWN EXPANSION CHASIS!



Computer Case\$59.95
8 Slot Motherboard\$69.95
Power Supply\$69.95
Rec/Driver Board w/cables\$159.95



XT type cases

- IBM Look-A-Like Case
- Slide Off Cover
- Requires Side Switch Power Supply
- For Exact IBM Foot Print Boards Only
- 8 Slots in Rear
- Case 70\$59.95
- Hinged Top Case
- Flip Top Cover
- Requires Side Switch Power Supply
- Fits All Clone Boards
- 8 Slots in Rear
- Case 60\$59.95
- Hinged Top Case
- Flip To Cover
- Requires Rear Switch Power Supply
- Fits All Clone Boards
- 8 Slots in Rear
- Case-50\$59.95

IBM CABLES

6' Parallel\$10.00
15' Serial\$12.00
15' Monitor\$8.00

IBM COMPATIBLE BOARDS



IBM Compatible
Keyboard

A please to use! Laid out like a selectric typewriter with extra large return key. This is the best we've seen.\$69.95

512K Memory Card
w/o K Installed
\$69

Floppy Disk
Controller

• Drives 4x5/4" FDD
• IBM fully compatible
\$54⁰⁰

KEYTRONICS 5151 COMPATIBLE

New keyboard with split cursor & number pads. Looks like the 5151. A must for running Lotus 123\$109

PRINTER PORT
Serial
Ports
\$29

Monochrome Graphics with Printer Port

- 80x25 Text Mode (default)
- 720x348 Graphic Mode
- Can Run Lotus 1-2-3
- 64K Graphic Display Memory
- 18 KHz Mon Printer Inter

\$129

Floppy Disk & I/O

- Floppy Disk Controller
- Serial, Parallel, & Game Ports
- Ck/Cat w/Battery
- Software

Multi-Function Card

- 384K Mem. Exp.
- Serial, Parallel, & Game Ports
- Ck/Cat w/Battery
- Software

\$175 w/384K

Hard Disk
Controller

Controls 5, 10, 15, 20 & 35
MEG Drives w/No ROM
Change cabled included
\$159⁰⁰

I/O Card

- Short Card
- Serial, Parallel & Game Ports
- Ck/Cat w/Battery
- w/battery back-up
- RAM disk & print
- Spooler software
- Cables

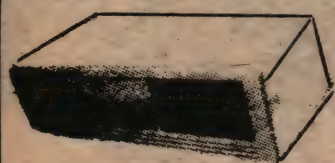
\$109

Super Color Card

640 x 200 Resolution Com
posite & RGB Outputs
\$89

DISKETTES
DSD \$8⁰⁰/Box 10

SURPLUS COMPUTER COMPONENTS



CASE 30
\$39.95

DISK DRIVE ENCLOSURE

For Mounting External Drives or Hard Disk
Room For Fan & Power Supply



SHUGART 8"
DISC DRIVES
FOR XEROX 820
\$65.00

SSDD



SUPER SURGE HASH FILTER
\$15⁰⁰

6 Outlets, Fused, Mov.
& LC Circuits

BARGAIN BOARD ASSEMBLIES

Sound generator boards removed from electronic pin-ball
games. Contains oscillators, control circuits & 2 watt audio
amp. Experimenters dream!!!
\$2 ea — 10/\$12.50 w/schematics

5V & 12V REGULATOR BOARD

Regulator board containing 5v & 12v TO-220 regulators,
fuses, bridges, caps & I/O connectors. Size 2" x 4".
W/heatsinks.
REG-512 \$3.50

24V REGULATOR BOARD

Regulator board for 24v @ 2amp power supply. 2" x 3.5"
size.
REG-24 \$3.50

RECTIFIER BOARD

Contains (4) 10amp bridges, (3) large filter caps, & I/O
conn. Size 4.5" x 8".
BRDG-4, \$2.50 ea. or 10/\$12.50

CENTRONICS 730 MAIN BOARD

Contains 25vac @ 2.5amp xfmr. 8049 IC, & power
transistors.
BD-730 \$8.50

LINEAR & CMOS BONANZA

Circuit board removed from SINGER electronic calculators,
has 20 linear & cmos IC's & a wealth of other parts.
BD-20 \$2.50 ea. or 10/\$12.50

TI 990 COMPUTER SURPLUS BARGAINS

Mainframe Chasis with card slots & power
supply \$250
Dual 8 Inch Drives with power supply & rack
mount case \$175.00

NEW ITEMS

Vitek Model TC-IM Cable Converters \$9.95
12 Volt Reed Relays SPDT \$60
6A 300 Volt Bridges 2/\$1.00
12 Volt Motors 2/\$1.00
4N26 Opto-Isolators 4/\$1.00
12 Volt Regulators 39¢



TOCOM 55 PLUS
CABLE TV CONVERTER

We Received A Large
Shipment Of These Cable
Converters. Good Savings!

Complete Unit — \$24.50
Mainboard — \$12.50
Power Sup. — \$7.50

FANS



SPRITE SPAZL
115VAC 9 WATTS 3" \$4.00



8" DRIVE POWER
SUPPLIES \$24⁵⁰



TV-GAME
SWITCH
\$.65 EACH
OR 10/\$4²⁵



3 VOLT
LITHIUM
BATTERY
Used as battery back-up on most
multi-function cards.
Mallory BR 2325
\$1⁰⁰ EACH 10/\$5⁰⁰



ISOLATION
TRANSFORMER
117VAC: 117VAC @ 125VA
MFG. BY SIGNAL TRANS.
3" Each - 10/\$20⁰⁰

KAYPRO SURPLUS



KAYPRO EQUIPMENT

★ SPECIAL ★

K2 board (tested), 9" green monitor &
keyboard. All for \$275
9" Green monitor (New) \$45
81 Series ROM's \$7

KAYPRO MAINBOARDS

K2 with sockets \$27.50
K2 populated - tested \$185
K10 populated - tested \$290

12" Computer Monitor



FRAME INCLUDED These are new
monitors that have
never been installed.
Originally designed
for Adds REGENT 200
TERMINAL. Green
screen requires 13.2
VDC. Great for XEROX
hackers. Schematics
included \$27.50

WIRE — WIRE — WIRE

WIRE WRAP WIRE (300A)

Choice of 9 colors. On 100' spools. A
must for prototyping!
WIR-30 \$2.50/100' roll

TEST PROBE WIRE

Rubber coated 18ga. Sky wire, Red,
Black, white or blue
WIR-18 \$3.50/100'

USED STB BOARDS

Graphix Plus II \$225
RIO Plus w/256K \$150
Super Res 400 \$345

PARROT DRIVE SYSTEM FOR XEROX 820 FLOPPY & 5 MEG W/CONTROLLERS \$350⁰⁰

XEROX 820-I



XEROX 820-I
Z80 SINGLE BOARD
COMPUTER

- 64K RAM
- 80 x 24 Video
- Floppy Disk Controller
- 2 Parallel Ports
- 1 Serial Port

Assembled & Tested
\$89.95



3 VOLT
LITHIUM
BATTERY
Used as battery back-up on
most multi-function cards.
Mallory BR-2325
\$1⁰⁰ EACH — 10/\$5⁰⁰



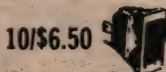
COMPUTER SPEAKERS
2.25" 8 ohm, .25 watts. This
is the same speaker that IBM
uses. Excellent for computer
builders. Stk. # SPK-8



WALL PLUG
ADAPTERS
6VDC @ 300ma
\$1.75 or 10/\$12.50



Diablo S-11 Printer
100 CPS
Near letter qual. mode
\$169⁰⁰



ROCKER SWITCH
Heavy duty 16 amp., DPDT.
Snap in mount (1"x1-1/8").
With black bezel. Mfg. by Ar-
row. Switch is used on Xerox
820 sys.



12"
COMMODORE
REPLACEMENT MONITOR

- Composite input
- On board power sup.
- Green screen
- High resolution

\$19.95

RADIO-SHACK COMPUTER SURPLUS



TRS-80 Mod III motherboards populated
boards with all IC's except ROM & RAM.
We have a ton of these to close out!

TR-3A complete undamaged boards, easy
to bring up 2/\$24
TR-3B damaged boards with hole or cor-
ner clipped 3/\$14
Mod III ROM set \$20
Mod III RAM set \$15

Tandy 2000 Motherboards
Production line rejects. Wave soldered.
Loaded with lots of parts, \$39.95.

Popular DB Series Computer Connectors

DB-9 Male Solder pot \$1
DB-9 Female solder pot \$1
DB-9 hoods \$.65
DB-25 male solder pot \$1.25
DB-25 female solder pot \$1.25
DB-25 hoods \$.75



TEC 501 Disk Drive
SSDD 1/2 Hgt.
Good for Xerox, Atari,
Commodore, etc.
\$39.95

BUILD YOUR OWN EPROM ERASER 8" Horseshoe shaped tube with holder and power supply.



\$12.95

EPROM ERASER



COMMODORE REPLACEMENT
POWER SUPPLY

For C64 & V20
S.V.D.C. @ 1.7A
9 VAC @ 10A
\$14.50

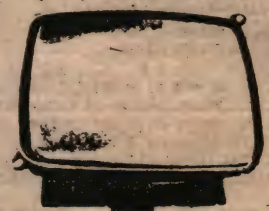
SWITCH BOX



New
Product

This A-B switch lets you share
your computer with any two
peripherals (serial or parallel). All
25 lines are connected. Has one
DB25 female input & two DB25
female outputs.
Stk. # AB25 \$39.95

9" HIGH RESOLUTION (TTL) VIDEO MONITOR



NEW

Green Screen
12 VDC Required

Originally used in portable computers.
Stk. #964-02 \$19.95

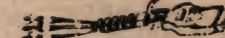
TI 99/4A COMPUTER SURPLUS

Switching power supply for
TI 99/4A computer or expan-
sion box. 3 DC outputs:
+12v @ .4amps, +5v @
1.1amps, & -5v @ .2
amps.
PS-4A \$3.50 — 10/\$19.95



ASTEC #UM1381-1
Modulator. Can be used with
all video sources. Built in A/B
switch. Operates on 12vdc.

MOD-1381 \$3.50



CASSETTE INTERFACE CABLE
Has DB 9 connector on one side to 3
phono jacks on the other.
CIC-93 \$1.50 ea or 10/\$10



POWER TRANSFORMER
Dual output: 2/Vac @ 45 VA
Heavy duty

TN-21 \$2.50ea or 10/\$22

TRANSFORMER SPECIALS

STK#	Primary (VAC)	Secondary (VAC)	Dimensions (L*W*H Inches)	Price
TN-6.3	117	6.3 @ 300ma.	1.5 x 1 x 1.25	\$1.25
TN-12	117	12 @ 400ma.	1.5 x 1.5 x 1.25	\$1.35
TN-18	117	18ct @ 2 amps	2.75 x 2.5 x 2.25	\$2.75
TN-24A	117	24 @ 200ma.	2.75 x 2.3 x 2.4	\$1.25
TN-24B	117	24ct @ 3.6amp	3.1 x 2.75 x 2.5	\$3.50



LOLIR ELECTRONICS CORP.

13933 N. CENTRAL EXPRESSWAY

SUITE 212

DALLAS, TX 75243

214-234-8032 — 214-234-8056

TERMS: Check, M.O. or MC/Visa.
COD's add \$1.90. Shipping add
\$3.50. TX Res. Add 6 1/8% Tax.



Bulletin Board

BULLETIN BOARD

The Bulletin Board is a regular feature of *Computer Shopper*. This is where you can list your public access of community bulletin board at no charge. If you would like to have your name, BBS and phone number listed send it to us. BBS listings are in area code sequence.

Listings are good for three months. After that period they will be purged unless we receive a Post Card or Letter saying the board is active. In addition, any reader who contacts a board can confirm that it is active, but it is up to the SYSOP to keep us current.

Thank you.

Send listings to:

Computer Shopper
Bulletin Board
Post Office Box F
Titusville, FL 32781

ABBS Apple Mate, New York, NY 201-864-5345
ABBS CNU, Pompton Plains, NJ 201-835-7499
ABBS Livingston, NJ 201-994-9620 *24
AMIS Park Ridge, NJ 201-391-5519
APHRODITE-E, 201-831-1042
APPLE OASIS, Chester, NJ 201-879-4392, 5pm-12am
ARMUDIC Washington, DC 201-276-8342
ATARI, Edison, NJ 201-549-7591
BACPACK BBS, Watchung, NJ 201-755-6858
THE BEACH, Bay Head, NJ 201-892-8172
CASTLE WESTERBURG, East Brunswick, NJ (201) 238-9118
CFONJTBBS, Linden, NJ 201-486-2956, 300/1200 baud *24
COCO CREATIONS, Jackson, NJ 201-928-9488 *24
COMBOARD-64, Teaneck, NJ 201-833-2846 7pm-7am
CONFERENCE THREE Flagship, Denville, NJ 201-627-5151 *24
DAVID'S PLACE, Hillsdale, NJ 201-566-7696 *24
DIAL-YOUR-MATCH #14 201-272-3686
F.B.I. Neptune, NJ 201-922-9836 8am to 10pm-7 days a week
F.L.B.S. Fanwood, NJ, Atari BBS, 300 Baud (201) 322-6862 *24
GENERAL STORE, Hillside, NJ 201-666-2646 *24
HUDSON COUNTY COMMODORE BBS, Union City, NJ 201-864-7430 *24
IBM RBBS ESSAYS SOLICITED, 300/1200 BAUD ASCII MODEM 201-858-2742 *24
THE MAGIC BAG, Neptune, NJ 201-988-9489 *24
MICRO-PHONE/TBBS, Metuchen, NJ 201-494-3649 *24
NEW JERSEY TELECOM, 201-635-0705 *24
OMEGAMON RBBS, Jersey City, NJ 201-653-3893 *24
BBS, Haledon, NJ 201-790-6795
PMS Rutgers Univ. MicroLab Piscataway, NJ 201-932-3887
THE POLICE STATION TBBS, IBM 300/1200/2400, Hoboken, NJ 201-963-3115
THE RADICAL BOARD, 201-837-8504 *24
RATS Systems 201-887-8874
RCPIB MCBSB Flanders, NJ 201-584-9227 *24
RCPIB TPM (RBBS) Englishtown, NJ 201-446-6359 *24
RCPIB RBBS Ocean, NJ 201-775-8705
RCPIB RBBS Rutgers New Brunswick, NJ 201-932-3879 *24
THE REALM OF EVIL, Apple II, 201-694-1547 *24
SILVER SURFER'S BEACH, 201-398-8761
SKYLANDS BBS Ringwood, NJ 201-962-4956 *24
STAR FLEET COMMAND, Atari, 201-839-3062 *24
STUDIO 64, C-64, 201-696-0639 *24
TIBBS Brick, NJ 201-477-7263
TIBBS Tom's River, NJ 201-929-8161
THE TRON BOARD, North Bergen, NJ 201-869-5460
NORTHERN NEW JERSEY BBS, W. Milford, NJ 201-728-8333 *24
THE WAR ROOM, Bloomfield, NJ 201-743-8653
XEVIDUS ISLAND, Atari, 201-835-8340 *24
ARMU Washington, 202-276-8342
DYNABOARD-64, Washington, D.C. 202-686-5230 *24
PCPIB RBBS Cranford, NJ 202-272-1874
PSBBS Washington, D.C. 202-337-4694 *24
F.S.L. COMMODORE Washington, D.C. 202-745-2973 *24
64 NEWSROOM BBS, Northfield, CT 203-484-0178 6pm-8am, weekdays *24 on weekends
BULLET-80 Danbury, CT 203-744-4644
BULLET-80 Seymour, CT 203-888-7952
COLORAMA OF WESTBROOK, Westbrook, CT 203-669-1165 *24
GATEWAY FIDO, CT 203-669-8896
MET-CHIEM-BBS Hamden, CT 203-281-7287 business hours
NADEX, Cheshire, CT 203-271-1203 7:00am-10:00pm (eastern time)
THE SWITCHBOARD NETWORKS Clinton, CT 203-669-3456 *24
TELECOM 7 New Fairfield, CT 203-746-5763 *24
TOTAL BOARD Meriden, CT 203-634-0052 *24
The BULLETIN BOARD Tuscaloosa, AL 205-758-5017 Mon-day, Wednesday, Friday, Saturday, Sunday 8pm-7am
FORUM-80 Montgomery, AL 205-272-5069
RCPIB RBBS Huntsville, AL 205-895-6749
ABBS Apple Crate I, Seattle, WA 206-935-9119
ABBS Apple Crate II, Seattle, WA 206-244-5438
A-C-E-S-S Olympia, WA 206-866-9043 *24

AMIS Space Washington, 206-525-3412
ARBB Seattle, WA 206-546-6239
BLACK BEAR'S DEN (IBM & Macintosh), Old Town, ME, 207-827-7517 8pm to 9am Daily, 9am to noon Saturday and Sunday
DIAL-YOUR-MATCH #16 206-256-6624
ESKIMO NORTH, Seattle, WA 206-367-3837 *24
FORUM-80 Seattle, WA 206-723-3282
IQ TECHNOLOGY, Washington, D.C. 206-451-0232
JCTS Redmond, WA 206-883-0403 *24
MAIL Board-82 Seattle, WA 206-527-0897 *24
MINI-BIN Seattle, WA 206-762-5141
MSC-80 Everett, WA 206-334-7394
MTG ELECTRIC BBS Marysville, WA 206-653-3801
OLYMPIA KAYPRO CP/M, Olympia, WA 206-491-1873
OLYMPIA MORROW CP/M, Olympia, WA 206-786-0137
PCPIB Silicon Valley 206-458-3086
PMS-SOFTWARE Unlimited Kenmore, WA 206-486-2368 *24
SEACOMM-80 Seattle, WA 206-763-8879 *24
SHERWOOD FOREST, Tacoma, WA 206-582-5188
THE CONSTANT SOCIETY Seattle, WA 206-525-5947
WHIDBEY ISLAND COMPUTER SOCIETY, Oak Harbor, WA 98277 206-675-9786
OLYMPIA KAYPRO Olympia, WA 206-491-1873
ADVENTURE IN THE TRIVIAL DIMENSION Windham, ME 207-892-9810
CONFUSER USER Windham, ME 207-854-2687
DOWNEAST CONNECTION, 300/1200 baud TIBBS, 207-797-5690 *24
EQUUS, ME, Prometheus 300/1200 baud, 6am-6pm, 207-374-2203
MAGIC CRYSTAL Windham, ME 207-774-5570
TIBBS, Portland, Maine 207-797-5690
IDAHO TELECOM SERVICE Rigby, ID 208-745-9438 *24
IFBBS Idaho Falls, ID 208-523-7400, 300/1200 baud *24
IDAHO BBS EXPRESS, Idaho Falls, ID 208-529-3036
CBBS Sequoia Computer, Visalia, CA 209-739-1776
RCPIB CBBS, Visalia, CA 209-733-5588 *24
DIAL-YOUR-MATCH #26 Clovis, CA 209-298-1328
ABBS Queens, NY 212-896-0519
AMBER ZONE Staten Island, NY 212-967-3789 *24
AMIS, Info New York, 212-767-6633
AMIS, New York, 212-241-8965
AMIS, New York 212-568-0682
BBS -1 Woodhaven, NY 212-441-3755
BBS -2 Woodhaven, NY 212-441-3766
BBS -3 Woodhaven, NY 212-441-5719
BBS -4 Woodhaven, NY 212-441-5907
BRONX BBS, NY 212-933-9459
BULLET-80 New York, NY 212-740-5680 *24
COMM-80 Queens, NY 212-897-3392 *24
CONNECTION-80 Manhattan, NY 212-991-1664
CONNECTION-80 212-441-3755 *24
FIREFOX Computer World, NY 212-454-1462 *24
FIRST BASIS BOARD, New York City, NY 212-666-5015
GRAND CENTRAL TERMINAL 212-682-0681 *24
NET-WORKS New York, NY 212-410-0949
PALADIN'S PALACE, FOREM CBB, Queens, NY 212-699-0861 *24
PGA NAT'L LIBRARY New York, NY 212-420-0953
PMS McGraw Hill Books, New York, NY 212-997-4288
PIRATE'S LANE, NYC, NY 212-421-7093
TCBBS Astrocom, New York, NY 212-799-4649
TCBBS B.A.M.S. New York, NY 212-362-1040 *24
TCBBS Leigh's Computer World, NY 212-879-7698
THE DATABASE BBS 212-772-7167
VINEYARD COMPUTER WORLD, NY 212-357-5679 *24
ABBS Computer Conspiracy Santa Monica, CA 213-829-1140
ABBS Pacific Palisades, Los Angeles, CA 213-459-6400
ALL NIGHT BBS 213-564-7636
AMIS TABBS, CA 213-366-2125
AMIS WYUAG, CA 213-783-8373
BBS B.R. Los Angeles, CA 213-394-5950 *24
CHECKER BOARD Torrance, CA 213-538-9795
COMMODORE BBS, Los Angeles, CA 213-737-7581 *24
COMPUTER CONNECTION 213-657-1799
COMPUTER CONSULTANT'S NETWORK, West Los Angeles, CA 213-479-4074, 300/1200 baud *24
CONFERENCE-TREE #4 Santa Monica, CA 213-394-1505
CONFERENCE-TREE Kelp Bed, Los Angeles, CA 213-372-4800
DATAMATE Canoga Park, CA 213-998-7992
DIAL-YOUR-MATCH -1 213-842-3322
DIAL-YOUR-MATCH -4 213-783-2305
DIAL-YOUR-MATCH -7 213-840-8252
DIAL-YOUR-MATCH -9 213-345-1047
DIAL-YOUR-MATCH -11 213-242-1882
DIAL-YOUR-MATCH -25 213-842-9452
DIAL-YOUR-MATCH -28 213-764-8000
DIAL-YOUR-MATCH -36 213-452-6111
DRAGONS GAME SYSTEM 213-428-5206
ELECTRIC LINE CONN. Sherman Oaks, CA 213-789-9512
FUNNY PHARM, CA 213-410-0221 *24
FUNNY PHARM, II, CA 213-631-7328 *24
FUNNY PHARM III, CA *24
FUNNY PHARM IV, CA 213-822-3553 *24
FUNNY PHARM V, CA 213-631-2911
FUNNY PHARM VI, CA 213-316-6033
GAMENET Palos Verdes, CA 213-541-8039 *24
GREEN MACHINE, Los Alamitos, CA 213-431-1443
GREENE MACHINE FRICASED CHICEN, Arcadia, CA 213-445-3591
KANDY SHACK -3 Artesia, CA 213-402-1616
KLUGE COMPUTER 213-947-8128 *24
L.A. Interchange Los Angeles, CA 213-631-3186 *24
LONG BEACH COMMUNITY COMPUTER 213-591-7239 *24
NET-WORKS Coin Games Los Angeles, CA 213-336-5535
NET-WORKS Computer World Los Angeles, CA 213-859-0894 *24
NAVATION CO., Los Angeles, CA 213-881-6880
ORACLE North Hollywood, CA 213-980-5643
NET-WORKS Magnetic Fantasies Los Angeles, CA 213-388-5198
NET-WORKS Software Los Angeles, CA 213-473-2754
PASBBS Torrance, CA 213-516-7089 *24
PMS Los Angeles, CA 213-334-7614 *24
PMS O.A.C. Woodland Hills, CA 213-346-1849 *24
PMS OF PACIFIC PASADES Los Angeles, CA 213-459-6480 *24

RCPIB RBBS Downey, CA 213-861-2313 *24
RCPIB CBBS Pasadena, CA 213-799-1632 *24
RCPIB RBBS BBS Valley 213-360-5053
RCPIB RBBS Palos Verdes, CA 213-541-2503 *24
RCPIB RBBS Software Store Los Angeles, CA 213-296-5927 *24
B.B.S. - 64 SHOPPER Downey, CA 213-566-2937 *24
COLORAMA OF LAX CA 213-673-4045 *24
ABBS Dallas Info Board 214-248-4539
ABBS Teledunjon Dallas, TX 214-960-7654
ABBS Teledunjon I Dallas, TX 214-530-0858
ABBS The Moon, Dallas, TX 214-931-3437, 3436, 3438, 3439
AMIS Allen, TX 214-727-2824 *24
AMIS Dallas, TX 214-680-9018
BBS-80 DALTRUG Dallas, TX 214-235-8784 *24
BULLET-80 Hawkins, TX 214-769-3036
COMPUTER RESET, Garland, TX 214-272-7920 8am-12am
METROPLEX CP/M INTEREST GROUP RBBS/RCPIB Plano, TX 214-867-2068 *24
MICROSERVE (TBBS), Tyler, TX 214-581-3722, 300/1200/2400 *24
NET-WORKS Apple Grove, Dallas, TX 214-644-5197
NET-WORKS Apple Shack, Dallas, TX 214-644-4781 *24
NET-WORKS Electric Computer Dallas, TX 214-239-5482
NET-WORKS Winesap Dallas, TX 214-824-7455
RCPIB CBBS Dallas, TX 214-913-8274
T.R.A.I.N. BBS, Ennis, TX, Atari, 214-875-9818
AMIS BBS, Pennsylvania 215-333-3753
AMIS Pennsylvania 215-250-9471
AMIS Pennsylvania 215-432-9848
BULLET-80 Langhorne, PA 215-364-2180
COMNET-80 North Wales, PA 215-855-3809
COMPCOM 215-968-0170 300/1200 *24
DS CAB, West Lawn, PA 215-678-7691 *24
HEMRES-80 Allentown, PA 215-434-3998
LEHIGH PRESS BBS, PA 215-435-3388
RBBS Pennsylvania 215-398-3937
RBBS Pennsylvania 215-836-5116
TIBBS Philadelphia, PA 215-927-6432 *24
TIBBS Reading, PA 215-929-5348
AKRON DIGITAL GROUP Akron, OH 216-745-7855 *24
ARCADIA BBS Akron, OH 216-644-1014
ATARI Ohio 216-582-2797
ATARI EXPRESS Akron, OH 216-253-9247
ATARI PRISM Akron, OH 216-867-2422
BBS Computer Applications Poland, OH 216-757-3711
THE BLACK HOLE 64 Elyria, OH 216-322-7184 9pm to 6am
BIG BOARD (CP/M) Akron, OH 216-745-7819
BULLET-80 Chesterland, OH 216-729-2769
CAMELOT ATARI BBS Akron, OH 216-864-7002 *24
CLOUD NINE, 216-650-2989 *24
COMNET-80 Akron, OH 216-645-0827 *24
THE COMMODORE ARCADIA, 216-644-1014, 11pm-9am est.
COMMODORE'S BRIDGE Akron, OH 216-929-1454
COMMODORE CHIP Akron, OH 216-678-5033 *24
COMMODORE CLIPPER Akron, OH 216-928-4123 *24
COMMODORE COMMANDER Akron, OH 216-923-0347
THE COMMODORE CRUSADER, 216-864-8924 *24
COMMODORE EXPRESS Akron, OH 216-253-9247
THE COMMODORE GATEWAY, 216-896-9001 *24
COMMODORE RAINBOW Akron, OH 216-644-5516 *24
COMMODORE REALM Akron, OH 216-666-9463, 10pm-7am est.
THE COMPUTER EXPERIENCE, Cleveland, OH 216-946-9076 *24
COMPU-CENTER, Akron, OH 216-929-4803 *24
COPELY ATARI Akron, OH 216-666-8961
FIRECOM Akron, OH 216-666-0306
FIRESTONE PARK ATARI Akron, OH 216-724-7760
THE FOURTH DIMENSION, 216-644-4597 *24
FORUM-80 Cleveland, OH 216-486-4176
THE GOLDEN KEEP, 216-896-9147 *24
MEGA-FORCE BBS Akron, OH 216-699-9055
NEW AGE BBS Cleveland, OH 216-451-3280
NIGHT STALKER Akron, OH 216-376-6443
PIRATES DELIGHT Akron, OH 216-672-7580 *24
PMS Massillon, OH 216-832-8392 *24
PMS RAUG Akron, OH 216-867-7463 *24
RAILNET BBS Cleveland, OH 216-883-6298 *24
RBBS Lorain, OH 216-282-3423
RUBBER CITY ATARI Akron, OH 216-376-7618
S.T.A.R. BBS -1, Akron, OH 216-753-1199 *24
S.T.A.R. BBS -3, Akron, OH 216-753-5379
TBBS of Akron 216-724-2125 *24
TBBS OF SOUTH SUMMIT Akron, OH 216-724-1963 *24
TBBS OF TALLMADGE Akron, OH 216-633-7483 *24
TIMEX BULLETIN SERVICE, Parma, OH 216-661-4105
UNDERGROUND 64 Lorain, OH 216-282-8848 8pm-7am days
VICCOMM Akron, OH 216-896-0775 *24
AMHERST Amherst, OH 216-988-8806
CENTRAL IL CONNECTION Riverton, IL 217-629-7006 *24
NET-WORKS C.A.M.S., Decatur, IL 217-429-5541
TRS-80 Effingham, IL 217-347-5884 *24
NORTH MINNESOTA APPLE LINE Hibbing, MN 218-262-5746
AMIS Hart City, Elkhart, IN 219-262-3980
AMIS BBS Parlor City, Bluffton, IN 219-824-5198 *24
ELKHART TOWNE CRIER Elkhart, Indiana 1200/300 Baud 219-875-8754 *24
LAKE COMPUTER DEPOT, TIBBS 219-659-5628 *24
MEGA NET BBS Mishawaka, IN 219-259-4366
TIBBS-LAKE COMPUTER DEPOT Whiting, IN 219-659-1245 *24
ARMUDIC Computer Age Baltimore, MD 301-587-2132
ATARI Severna Park, MD 301-544-2460
BBS IBM 300/450/1200 BAUD, 301-267-4930 *24
BBS IBM PC Rockville, MD 301-949-8848 *24
BLACK PATCH SYSTEMS 300/1200 Baud Atari 301-974-1274
COMMODORE MANIA! Potomac, MD 301-251-0599 *24
DARK STAR BBS, Baltimore, MD 301-444-1245 *24
ELITE SYSTEMS Atari, 301-974-4987 *24
HEX Silver Spring, MD 301-593-7033 *24
HIDDEN REALM Glen Burnie, MD 301-768-1636
O'ZONE (DYM) Joppatowne, MD 301-679-6306

PMS Ellicott City, MD 301-465-3176
MYSTICAL FRONTIER (FIDO 468) Pasadena, MD 301-760-6187 *24
HARVESTER BAPTIST CHURCH Columbia, MD 301-995-0032, also Laurel, MD 301-596-0123
SALISBURY TOWNE CRIER (SALTC) Salisbury, MD 301-543-8845
LARRY'S ABBS Newark, DE, Voice 302-731-1583 Modem 302-737-7788
TIBBS Newark, DE 302-322-3999
A.M.I.S. Denver, CO 303-978-0298 *24
A.M.I.S. Denver, CO 303-758-2927 *24
AMIS Denver, CO 303-758-6233
APPLE PI BOARD Denver, CO 303-469-7541 *24
ATARI CO 303-221-1779
AURORA NETWORKS Denver, CO 303-343-8401 *24
BAHA'I BOARD TBBS Denver, CO 303-449-3306 *24
BBS IBM PC Denver, CO 303-773-2699 *24
BARDNET Ft. Collins, CO 303-493-1068
COLORADO DEPT. OF EDUCATION Denver, CO 303-572-1093 *24
COMM-NET Denver, CO 303-366-3898, 366-7177, 430-2473 *24
The COMPUTER FARM Colorado Springs, CO 303-632-0660 *24
The CONTROLLER BOARD TBBS ISLAND Denver, CO 303-690-9423
CONNECTION-80 Denver, CO 303-4566 *24
CP/M SIG RCPIB w/CBS Denver, CO 303-465-1313 *24
DATA BANK Denver, CO 303-494-0167 *24
DATA-LINE Denver, CO 303-320-4102 *24
DENHUGH BBS Denver, CO 303-423-3224 *24
DYM -118 THE BROKERAGE -THE BROKER Denver, CO 303-796-9721 *24
ELECTRIC MAGAZINE 303-340-2473 *24
ELECTRONIC LOCKSMITH-TOP SECURITY SYSTEMS Denver, CO 303-973-2167 *24
FIDO-NET Denver, CO 303-973-9338 *24
FIDO-NET GMCC (-77) Denver, CO 303-497-6968 *24
FIDO-NET -334 Denver, CO 303-497-6968
FRONT RANGE BBS (TRS-80) Denver, CO 303-772-7229 *24
FORUM-80 #2 Denver, CO 303-399-8858 *24
GOLD STRIKE BOARD Denver, CO 303-278-1487 *24
GULLIVER'S BOARD Denver, CO 303-690-1343 *24
HBBS Denver, CO 303-343-8401 *24
THE HOLLOW -THE DRUID Denver, CO 303-329-6342 *24
I.D.S. STARCROSS Denver, CO 303-781-8212 *24
INTERCOMEX Denver, CO 303-367-1935 *24
RCPIB CUG-NOTE Denver, CO 303-781-4937 *24
RCPIB RBBS Arvada Elec. Colorado Springs, CO 303-634-1158 *24
RCPIB RBBS Boulder, CO 303-499-9169
COM-MART Aurora, CO 303-695-0783 *24
PCJ-NET -JR-NET -4 Englewood, CO 303-789-4610 *24
PHOENIX ENTERPRISES Dover, DE 302-734-0179 10pm-7am
CONRAD'S FSCC Millford, DE 302-422-0923 10pm-7am
NETWORKS ABBS Info International NW, Reedy, WV 304-927-1773
NET-WORKS Charleston, WV 304-345-8280
TRI-STATE AREA BBS Huntington, WV 304-429-3918
WEIRTON PERSONAL COMPUTER ASSOCIATION Weirton, WV 304-797-1302
AUTOBOARD -1 COMMODORE Stuart Users' BBS (STUBBS) Stuart, FL 305-286-2509 *24
A.C.C.P.B. B.B.S., Pal Beaches, FL 305-433-3333
ADULTS ONLY, TBBS, Miami, FL 305-935-1136 *24
THE ASYLUM, 305-937-1880 *24
THE ATARI EXPRESS, 305-961-5221 *24
ATLANTIS, 305-920-6203 *24
BBS Homestead, FL 305-246-1111
BACKSTREET, 305-937-2838 *24
BBS DIRECTORY, 300/1200 baud, 305-231-6435, 7pm-9am/24hrs weekends.
C-64 BBSI 305-238-2271. This is a Punter BBS
CECIL'S NITE OWL Palm Bch., FL 305-588-0487 *24
CHALKBOARD Hollywood, FL 305-962-6052 *24
COLOR BURST Ft. Lauderdale 305-525-1192 *24
CORAL REEF I, 305-432-2766 *24
CRYSTAL PALACE (ATARI) 305-722-1697 *24
THE CRYPT, 305-921-7252 *24
DIAL-YOUR-MATCH Sunrise, FL 305-741-2308
EL-SHIFT-ON Cocoa, FL 305-783-8905 *24
EMERALD CAVERN Hollywood, FL 305-981-4252
FORUM-80 Ft. Lauderdale, FL 305-772-4444 *24
GREENE MACHINE SPACECAST 305-268-8356 *24
GREEN MACHINE SPACECAST 2 305-453-6561 *24
CABLE BOX Pembroke Pines 305-432-5969 *24
MAGIC CITY WORLD OF TRON Miami, FL 305-264-9964 *24
MCM MICRO City Homestead, FL 305-247-6173 *24
MUGGY'S HIDEOUT, 305-961-3829 *24
NET-WORKS Big APPLE Miami, FL 305-948-8000
THE NOTEBOOK, 305-655-4713
ONE STEP BEYOND, Longwood, FL 305-831-0032
PIRATE-80 305-255-8059 *24
QUILL, AMIS BBS Palm Bay, FL 305-724-2303
RAMIK ONE BBS Lake Worth, FL 305-439-8710
RBBS HEATH HT 305-823-2281 6pm-8am
RBBS SOUTHERN MICRO 305-625-3181 *24
SASKATOON TEXAS INSTRUMENTS BBS, SASKATOON, SASK., 306-978-0182
SCAUD BBS Merritt Island, FL 305-453-6998
SHADOW WORLD, 305-653-9856 *24
SPACE SHUTTLE BBS (SSBBS) Satellite Beach, FL 305-777-4714 *24
T.I.B.S.S. (CPU), 305-583-4343 *24
TBBS Orlando, FL 305-644-8327 *24
TECH-80 305-266-1032 *24
THE BYTE SHOP 305-261-3639, Networks Not BBS
TIBBS West Palm, FL 305-793-8050
TRADE 80 Ft. Lauderdale, FL 305-525-1192
TRADE 80 of Miami 305-947-7930 *24
TRADE 80 Pompano Bch. 305-426-8080 *24
TREASURE QUEST Vero Beach, FL 305-562-1627 *24
UNICORN, AMIS BBS Palm Bay, FL 305-729-9575
YBBS The Health Bar 305-404-8795 *24
NOVA Merritt Island, FL 305-453-0079 *24
COMNET-64 (COMMODORE) Tamarac, FL 305-726-4390 *24
THE PINNACLE BBS Hollywood, FL 305-922-4440 *24
NET-WORKS CAVE Hollywood, FL 305-961-8685 *24

BBS VERO BEACH, FL 305-231-6435
THE NOTEBOOK FOR WRITERS OF FL 305-655-4713
A.C.C.P.B. Palm Beaches, FL 305-433-3333
SASKATOON TEXAS INSTRUMENTS COMPUTER CLUB, SASKATOON, SASK 306-384-2844
PET BBSs Wyoming PUG 307-637-6045 *24
THE EXPRESS East Peoria, IL 309-699-6359 noon-11pm CST
NET-WORKS MAGIE Galesburg, IL 309-342-7178
QUAD CITY COMPUTER CLUB BBS, Rock Island, IL 309-796-0629 300/1200 baud *24
ABBS Chicago, IL 312-743-3153
ABBS Gamemaster, Chicago, IL 312-475-4884 *24
ABBS Lincolnwood, IL 312-764-6502
ABBS Rogers Park, Chicago, IL 312-973-2227
AMIS Boet, IL 312-544-7228
AMIS Chicago, IL 312-789-3610 *24
AMIS Lombard, IL 312-620-6441
THE BASIC BBS Aurora, IL 312-896-9628 3pm-11pm
CBBS Chicago, IL 312-545-8086 *24
CBBS Chicago, IL 312-876-0974
CBBS Dolton, IL 312-849-1132
CLAUG 312-889-1240
CLAUG 312-457-2219
CLAUG 2 312-457-2219
THE CHICAGO GREEN MACHINE 312-622-4442
CO-OP BBS Arlington Heights, IL 312-228-1495
CP/M Chicago, IL 312-326-4392
CP/M Chicago, IL 312-338-8827
CP/M Chicago, IL 312-537-7888
CP/M Chicago, IL 312-861-1797
CP/M Downers Grove, IL 312-852-1305
CP/M Glen Ellyn 312-469-2597
DIAL-YOUR-MATCH -39 312-243-1046
DYM -110 Wilmette, IL 312-256-3995 *24
HCOM Chicago, IL 312-267-2066
HP1 Palantine, IL 312-397-8308
MCMS C.A.M.S. Chicago, IL 312-927-1020 *24
MCMS Hanover Park, IL 312-289-7619
MCMS L.A.M.S. Round Lake, IL 312-740-9128
MCMS Waco Hotline, Schaumburg, IL 312-351-4374 *24
MCMS Wheaton, IL 312-462-7560
NESSY Chicago, IL 312-773-3308
NET Arlington Heights, IL 312-392-2403
NET Arlington Heights, IL 312-398-0970
NET Chicago, IL 312-545-5866
NET Chicago, IL 312-685-9573
NET Chicago, IL 312-278-7261
NET Lombard, IL 312-627-5138
NET Wheaton, IL 312-608-0748
NET Skokie, IL 312-674-9246
NET-WORKS Chippmunk, Hinsdale, IL 312-323-3741 *24
NET-WORKS North Park, Chicago, IL 312-745-0924
OCCS #2 Wheaton, IL 312-588-7917
OT Berwyn, IL 312-795-0871
PBBS Co-Operative Comp. Palatine, IL 312-359-9450 *24
PCM Midlothian, IL 312-396-1022
PET BBS COMMODORE Chicago, IL 312-397-0871 *24
PMS Chicago Public Library 312-235-3200
PMS Chicago, IL 312-373-8057 *24
RIPCO 1200/300 BAUD, Chicago, IL 312-528-5020 *24
RCPIB AIMS Hinsdale, IL 312-789-0499 *24
RCPIB IBM PC Niles, IL 312-259-8086
RCPIB Logan Square, Chicago, IL 312-252-2136
RCPIB NEI, Chicago, IL 312-949-6189
TBBS Chicago, IL 312-445-4545
TIBB Oak Park, IL 312-848-3669
UNIVERSITY CONFERENCE INFORMATION NET Chicago, IL 312-942-0089
WAUKEGAN PUBLIC LIBRARY SYSTEM BBS Waukegan, IL 312-623-2226
THE BEARS' DEN Chicago, IL 312-561-2382 *24
CBBS (CACHE LOBO-80) Chicago, IL 312-384-2320 6pm-8am weekdays *24 weekends
ABBS Michigan Apple-Pone Southfield, MI 313-357-1422
ABBS A.R.C.A.D.E. Sterling Hgts., MI 313-978-0807 *24
AMIS M.A.C.E. Detroit, MI 313-368-2064 *24
AMIS MACE, Michigan 313-274-3940
AMIS Michigan 313-544-0885
APPLE-GRAM 313-292-0389
THE ATARI ROCK PALACE Dbrn. Hgts

Bulletin Board

FORUM-80 Wichita, KS 316-682-2113 *24
TIBBS Wichita, KS 316-681-3167

BUSINESS PERSONS' LUNCH Wichita, KS 316-685-1205
GREAT INLAND SEA BBS 316-685-1188 6pm-8am
C.S.W. 316-942-8746
OMEGA BBS Wichita, KS 316-685-8202 *24
TIBBS Wichita, KS 316-681-3167 *24
MOUSE EXCHANGE Wichita, KS 316-685-1190
COMMODORE BBS Wichita, KS 316-683-7848 *24
PANTHER I Wichita, KS 316-687-1268
SPECTRUM Wichita, KS 316-945-0882 *24
UNION STATION BBS Wichita, KS 316-262-0819
W.O.P.A. Wichita, KS 316-683-0160
WOLF'S DEN, 316-838-9456
THE WOODSHED Wichita, KS 316-524-9069

BBS MESSAGE BOARD, C/P Tim Rivers 317-457-5576
The COCO BULLET Indianapolis, IN 317-291-7827 *24
PMS Indianapolis, IN 317-787-5486
PMS SOFTWARE EXCHANGE Indianapolis, IN 317-251-7796
8:30pm-10am
SUPER-G.U. BBS, Lebanon, IN 317-325-2849 *24

CBM-U COMMODORE Crowley, LA 318-783-2647 *24
DIAL-YOUR-MATCH -66 Lafayette, LA 318-233-7472
FORUM-80 Shreveport, LA 318-631-7107 *24
STAR (LINC) BBS Shreveport, LA 318-688-0522 *24
TIBBS Lake Charles, LA 318-474-6144 *24
THE TOWN CRIER BBS, Church Point, LA 318-684-3244
6pm-6am

ABBS Apple-Med., Iowa City, IA 319-353-6528
CompuCenter IOWA 319-338-2750 300/1200 Baud
Upload/Download
THE COMPUTER CELLAR Cedar Falls, IA 319-277-0646
IBM PC Cedar Rapids, IA 319-363-3314 *24
SUNSHINE BBS/EXCHANGE, DUBUQUE, IA 319-557-9659
*24

AMIS Rhode Island 410-521-1998
NET-WORKS Computer City, Providence, RI 401-331-8450
*24

AQUIDNECK TELETERMINAL (ATT), NEWPORT, RI
401-847-8934 *24
DIAL-YOUR-MATCH -23 402-571-8942
TRADE-80 Omaha, NE 402-292-6184
LETHRIDGE GAMING SYSTEM Lethbridge, AB 403-320-6923
RCPIB BBS Computron Edmonton, Alberta, Canada
403-482-6854

AUGUSTA TOWNE CRIER Augusta, GA 404-737-3333
BBS Atlanta, GA 404-435-9671
BBS IBM Hostcomm Atlanta, GA 404-252-4146
CBBS ATLANTA COMPUTER SOCIETY Atlanta, GA
404-636-6130
ITBBS Riverside, GA 404-471-8824
NOCHANGE Atlanta, GA 404-587-4198 *24
TERMINAL WANT ADS Chamblee, GA 404-458-4197
TIBBS Atlanta, GA 404-928-4278 & 404-471-1283
TIBBS Ringgold, GA 404-935-4054
AMIS Oklahoma 405-681-6929
AMIS Oklahoma 405-685-2027

ARMU Oklahoma 405-722-5056
CENTRAL OKLAHOMA COMPUTER ORGANIZATION, INC.,
Midwest City, OK 405-733-3429 *24
HBBS Oklahoma City 405-848-9329 *24
SECOND HAND SOFTWARE Oklahoma City, OK
405-942-2714 *24
TRADER'S HOTLINE, Ada, OK 405-436-6885 *24

BBS IBM PC Billings, MT 406-656-9624
PONY EXPRESS BULLETIN BOARD Missoula, MT
406-728-1097
AMIS Grafex Cupertino, CA 408-253-5216
AMIS ABBS San Jose, CA 408-298-6930
AMIS T.A.B.S. Sunnyvale, CA 408-942-6975
BBS -5 San Jose, CA 408-984-7937
BULLET-80 San Jose, CA 408-241-0759
BYTE BANDITS OF AMERICA TRS-80'S COMPUTER CLUB
San Jose, CA 408-374-3974 Free access *24
COMPUTAT Los Gatos, CA 408-353-1836
DIAL-YOUR-MATCH -56 408-736-7355
EIGENWARE Saratoga, CA 408-867-6575 *24
GENDERNET Sunnyvale, CA 408-734-8727 300/1200
Baud *24

INFORMATION EXCHANGE SYSTEM -1 Sunnyvale, CA
408-733-1364 8pm-11pm weekdays, 24 hrs
weekends/holidays
NET-WORKS Computer Emporium, San Jose, CA
408-227-0227
PMS Campbell, CA 408-370-0873 *24
PMS Santa Cruz, Aptos, CA 408-688-9629 *24
RCPIB Colossal Oxnate, San Jose, CA 408-263-2588
RCPIB RBBS Data Tech 004 Sunnyvale, CA 408-732-4231
RCPIB RBBS San Jose Oxnate, San Jose, CA 408-287-5901
*24

RCPIB Silicon Valley, CA 408-246-5014 *24
CBM-U Commodore, Galveston, TX 409-763-1970
CABBS, Conroe, TX 409-760-1437 *24
SAUCERNET Apple College Station, TX 409-693-7908
300/1200 bps
THE SWAP SHOP, 409-244-5154 *24

ARMU Pennsylvania 412-655-2652
CBBS PACE Pittsburgh, PA 412-486-6277 *24
PACE 412-754-0800 *24 AMIS
PENN-COMM BBS, Uniontown, PA 412-437-8286 *24
PGH L5 Pittsburgh, PA 412-366-6099 *24
PITTSBURGH ATARI COMPUTER ENTHUSIASTS
412-486-4133 *24
USER COMMUNICATION SYSTEM/IBM-PC, Pittsburgh, PA
412-276-1269 *24

ABBS Colortron Computer, WI 414-637-9990 *24
BBS SUE Milwaukee, WI 414-352-2772
BIG TOP GAMES SYSTEM Milwaukee, WI 414-259-9475
CBBS Maude Milwaukee, WI 414-241-8364 *24
EXEC-PC IBM PC Milwaukee, WI 414-964-5160 *24
MEGA NET, Appleton, WI 414-731-4957 *24
PET BBS S.E.W.P.U.G. Racine, WI 414-554-9520 *24
RCPIB RBBS Mike's Milwaukee, WI 414-647-0903
S.C.S. ABBS Lt. Suamico, WI 414-434-3253 8pm-7am
TIBBS Appleton, WI 414-739-5380
TIBBS Freedom, WI 414-788-9730

ABBS ABACUS II Toledo, OH 419-865-1594
ABBS COMPUTER STORE Toledo, OH 419-531-3845
THE LOST CAUSE BBS Crestline, OH 419-683-3463 *24
ARK-NET BBS Little Rock, AR 501-372-0576
PMS FT. SMITH COMP. CLUB Ft. Smith, AR 501-646-0197
RCPIB CBBS LR CPIM UG Little Rock, AR
501-378-7723 continuous
THE TRS-EXPRESS Louisville, KY 502-222-0913
ATARI COMPUTER ENTHUSIASTS 503-343-4352

TIBBS Canopus, Milwaukee, WI 414-281-0545 *24

ABACUS ONLINE - MODEL 100 USERS GROUP, Pleasant
Hill, CA 415-939-1246 *24
ABBS Computerland, Fremont, CA 415-794-9314
ABBS Hayward, CA 415-881-5662
ABBS PCNET, San Francisco, CA 415-863-4703
ABBS South of Market, San Francisco, CA 415-469-8111
ARMU Synapse CA 415-527-8276
BBS Living Videotext Menlo Park, CA 415-327-8876 *24
BLUE BOSS IBM PC Berkeley, CA 415-845-9462 *24
CBBS Lambda, Berkeley, CA 415-558-2919
CBBS Proxima, Berkeley, CA 415-357-1130
CONFERENCE-TREE -3 Hayward, CA 415-538-3580
CONNECTION-80 Fremont, CA 415-651-4147 *24
DIAL-YOUR-MATCH -10 415-467-2588
DIAL-YOUR-MATCH -17 415-991-4911
DIAL-YOUR-MATCH -56A 415-964-3255
DRUMMER 415-552-7671
ICB USED COMPUTER HOT LINE, 415-961-1431
KAY*FOG RBBS-RCIPM SYSTEM San Francisco, CA
415-285-2687
KINKY KUMPUTER San Francisco, CA 415-552-8268
MRBBS 415-968-6501
ON LINE DEPARTMENT 415-334-7555
P. BAY BBS San Francisco, CA 415-775-2384
PMS Pleasanton, CA 415-462-7419 *24
PMS Portola Valley, CA 415-851-3453 *24
RBBS DataTech 006, San Francisco, CA 415-563-4953
RCPIB RBBS Marin County, CA 415-383-0473 *24
RCPIB RBBS DataTech 001 San Carlos, CA 415-595-0541
*24
RCPIB RBBS Larkspur, CA 415-461-7726 *24
RCPIB RBBS Mountain View, CA 415-965-4097 *24
SUNRISE OMEGA-80 Oakland, CA 415-452-0350
SYSTEM80 San Leandro, CA 415-895-0699
TIBBS San Francisco, CA 415-355-3092

BBS IBM Hostcomm Toronto Ontario, Canada 416-499-7023
*24
BBS THE BULL Toronto, Ontario, Canada 416-423-3265
NETWORKS Toronto, Ontario, Canada 416-445-6696 *24
PET BBS PSI WORDPRO Ontario, Canada 416-624-5431 *24
PET BBS TPUG Toronto, Ontario, Canada 416-223-2625 *24
RCPIB HAPN Hamilton, Ontario, Canada 416-335-6620 *24
RCPIB MISSAUGA HUG Toronto, Ontario, Canada
416-826-5349 *24
THE CARSWELL CO. Ontario, Canada 416-291-8421
THE FRENCH CONNECTION BBS Niagara Falls, NY
416-575-2867

THE COMPUTER MATRIX Springfield, MO 417-869-5294
DGS*EXPRESS Springfield, MO. 300/1200 baud,
417-864-8546 *24
THE INFORMATION BOARD Springfield, MO 417-887-6942
HOOTNEY'S HOLLOW Springfield, MO 417-865-0614 *24

ABBS ABACUS II Toledo, OH 419-865-1594
ABBS COMPUTER STORE Toledo, OH 419-531-3845
THE LOST CAUSE BBS Crestline, OH 419-683-3463 *24

ARK-NET BBS Little Rock, AR 501-372-0576
PMS FT. SMITH COMP. CLUB Ft. Smith, AR 501-646-0197
RCPIB CBBS LR CPIM UG Little Rock, AR
501-378-7723 continuous
THE TRS-EXPRESS Louisville, KY 502-222-0913
ATARI COMPUTER ENTHUSIASTS 503-343-4352

CBBS NW Portlane, OR 503-646-5510 *24
CONNECTION-80 PAUG Portland, OR 503-281-7653
CELESTIAL SYSTEMS BBS, Portland, OR 503-233-0634 *24
FORUM-80 Medford, OR 503-635-6883 *24
TIBBS Gresham, OR 503-661-0408
MICROTEXT 503-754-1376 *24
OARCS Portland, OR 503-641-2798
PMS COMPUTER SOLUTIONS Eugene, OR 503-689-2655
*24
PMS Portland, OR 503-245-2536
RCPIB Chuck Forsberg, OR 503-621-3193
PCjr BBS Harvey, LA 504-366-0954 *24
THE TRADING POST Baton Rouge, LA 504-291-4970
THE BACK DOOR SOCIETY Baton Rouge, LA 504-292-3743
*24
FIREBASE XENON SEVEN Baton Rouge, LA 504-357-1886
WASH 'N WARE Baton Rouge, LA 504-292-7353

THE BAT BOARD, Baton Rouge, LA. 300 baud,
504-928-7466 *24
BATON ROUGE DATA SYSTEMS Baton Rouge, LA
504-926-0181
CBBS Baton Rouge, LA 504-273-3116 *24
THE CONNECTION BBS SYSTEM, Metairie, LA. 300/1200
baud, 504-834-2544
K.U.G.N.O. BBS, Kenner, LA. 300/1200 baud, 504-832-8082
*24
LNW BBS SOUTHEAST Baton Rouge, LA 504-291-4331
RIVER BEND NUKE NET 504-635-4394 *24

THE ALBUQUERQUE FIDONET BBS, Albuquerque, NM
505-898-2116 *24
BULLET-80 Alamogordo, NM 505-434-1096

GUESTHAUS ATARI New Ulm, Minnesota 507-359-9187 *24
Monday-Friday
TRI-STATE COMPUTER 507-376-6068 *24
ABBS ROB ROY COMPUTER Yakima, WA 509-575-7704
FIRE HOUSE, Spokane, WA. 300 baud, 509-928-0939 *24
RCPIB RBBS Spokane Microcomputer Users Group
509-255-6324 *24
THE HACKERS EDGE II, San Antonio, TX 512-822-6235
KCA BBS/RCPIB 512-346-8876 *24
LAZER BAY I 513-777-6178 *24
CINTUG Cincinnati, OH 513-474-2589 *24
COCONUT Cincinnati, OH 513-984-8705 *24
KOMPUTER KLASSIFIED Cincinnati, OH 513-489-8433 *24
PORTERONICS Cincinnati, OH 513-474-0701 *24

CBBS Corpus Christi, TX 512-855-1512
CONFERENCE-TREE Victoria, TX 512-578-5833
DIAL-YOUR-MATCH 512-451-8747
FORUM-80 San Antonio, TX 512-655-8143
NET-WORKS SPARLIN' CITY Corpus Christi, TX
512-882-6569
SATUG BBS San Antonio, TX 512-494-0285
The CATHOUSE Cincinnati, OH 513-528-0707 *24
CBBS 513-825-4478 *24
CIN-SOFT 513-396-7467 *24
CIN-TUG (TRS-80) (TIBBS) 513-474-2985 *24
COCONUT (TIBBS) 513-984-8705 *24
COMM-DATA 513-271-4274 *24
CRAB 513-738-4813 *24
POLARIS, San Antonio, TX 512-650-0772
SOFTWARE PLUS 513-621-9273
ULTRALITE, San Antonio, TX 512-659-5470
CBM-U CONNECTION LaSalle, Quebec 514-365-9914 *24

CONNECTION-80 LAVAL BELE Laval, Quebec, Canada
514-622-1275 *24
DISTRASOFT Montreal, Quebec, Canada 514-327-5764 *24
ON-LINE COMPUERLAND Montreal, Quebec, Canada
514-931-0458 *24
TESTAMENT St. Laurent, Quebec, Canada 514-332-6852 *24
THE BANDIT'S BOARDWALK, Marshalltown, IA
515-753-8115 *24
NET-WORKS COMPUTER EMPORIUM Des Moines, IA
515-279-8863
TIBBS Knapxville, IA 515-842-2104

ABBS PIRATES COVE Long Island, NY 516-698-4008
ADVENTURE BBS 516-621-9296
CBBS LICA LIMBS Long Island, NY 516-561-6590 *24
CONNECTION-80 Centereach, NY 516-588-5836
CONNECTION-80 Great Neck, NY 516-482-8491 *24
DRAGON'S LAIR Hewlett, NY 516-374-5071
LION Long Island Osborn Network 516-567-8267
LNW BBS 300/1200 Baud Long Island, NY 516-924-9229
NVC & JOB COST, IBM, VICTOR, TI, TRS80 III & IV, Port
Washington, NY 516-944-7007
NET-WORKS PIRATE'S TREK 516-627-9048
STAR TREK III 516-569-0589 *24 run on ATARI 300/1200
TIES Levittown, NY 516-781-1762 *24, 7 days
TI SOURCE Long Island, NY 516-475-6463
COLORAMA OF MIDDLE ISLAND Long Island, NY
516-924-6262 *24
BENCHBOARD BBS, 300 BAUD, 517-394-2447 *24
C.H.A.O.S. Lansing, MI 517-373-6788
CINET! Saginaw, MI 517-793-7407
COMPUTRONICS, Greenbush, MI 517-739-7027 *24
CONNECTION-80 Lansing, MI 517-339-3367
NORTH FOURTY, Oseoda, MI, 300 baud, 517-739-3352 *24

CAPITOL CITY BBS Albany, NY 518-346-3596 *24
TIBBS Albany, NY 518-765-4993
APPLE-SPICE (NETWORKS II) Windsor, Ontario, Canada
519-945-3555 6pm-6am
CBM-U COMMODORE London Ontario 519-679-9101 *24
NORATECH ONLINE Windsor, Ontario, Canada
519-966-4334 *24
PAYTON'S PLACE - BBS (COMMODORE), BLOXI, MS
601-388-3673 *24

BULLET-80 Hattiesburg, MS 601-264-2361 *24
C.A.U.G. Biloxi, MS 601-388-3490
MICRO-COM CPIM Jacksonville, MS 601-354-1239
NEW EXPRESS Columbus, MS 601-327-5062 Friday, Satur-
day, & Sundays 9pm-12pm
REMOTE APPLE Jackson, MS 601-992-1918 *24
APPLE GAME PLAYING SYSTEM Clinton, MS 601-924-0298
THE BLACKBOARD Jackson, MS 601-352-3591
THE 64-CONNECTION Clinton, MS 601-924-1100

ABBS Phoenix, AZ 602-898-0891
A.C.C.E.S.S. Phoenix, AZ 602-996-9709 *24
A.C.C.E.S.S. Phoenix, AZ 602-957-4428 *24
A.C.C.E.S.S. Phoenix, AZ 602-274-5964
A.C.C.E.S.S. Scottsdale, AZ 602-998-9411 *24
APPLEWRITER Thatcher, AZ 602-246-1432 *24
BBS APOLLO Phoenix, AZ 602-428-4073
CBBS TSG Tucson, AZ 602-574-0327 *24
CBBS TSG Tucson, AZ 602-746-3956 *24
COCO PUB (059) Chandler, AZ 602-899-1350 *24
CONFERENCE TREE Candler, AZ 602-931-1829
KANDY SHACK -4 Yuma AZ 602-342-2383

BODEX CORP.

224 East Main St. Marlboro Mass. 01752 Phone: 1-617-485-5115

HOURS: M-F 10-9
SAT 9:30-6

SHIPPING FREE
UPS ONLY

ALL EQUIPMENT 100%
FROM TANDY CORP.

TRS-80 COMPUTERS

• PURE RADIO SHACK EQUIPMENT •

LAST CHANCE TO GET A MODEL IV



NEW GREEN SCREEN
NEW KEYBOARD

64K R5232 \$699⁰⁰

EXTRA 64K RAM \$39.95 INSTALLED

COLOR
COMPUTER
\$169⁰⁰



WHILE
THEY
LAST!

MODEL 100
24K. \$499⁰⁰

MODEL 200
24K. \$740⁰⁰

TANDY 1000



\$729⁰⁰

VM-2
MONOCHROME
MONITOR
\$130.00

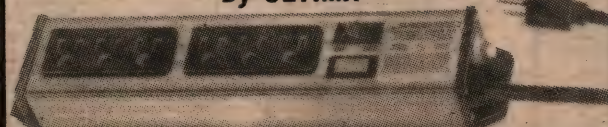
256K Board \$198.00
2nd Disk Drive \$158.00

ANYONE INTERESTED IN NEW MODEL 1's
— Please Call

EMI/RFI FILTER AND SURGE SUPPRESSOR

SURGEFREE

By ULTIMA



IDEAL FOR INDUSTRIAL, RESIDENTIAL
AND COMMERCIAL USE

\$49⁹⁵

One Year Warranty

OKIDATA PRINTERS

192P \$379.00
193P \$570.00

GEMINI PRINTERS

SG10 \$239.00
SG15 \$379.00

ALL TANDY PRINTERS ALSO

TANDY 2000

2 Disk Drive \$1295.00
Hard Disk \$1990.00

TANDY 1200HD



\$1695⁰⁰

ALL PRICES CASH

ALL PRICES ARE SUBJECT TO CHANGE
TRS 80 is a trademark of Tandy Corporation

Bulletin Board

TWILIGHT ZONE (ATARI) Tucson, AZ 602-790-8805 *24
KEENE BBS NH 603-357-4306
ACCESS 80 BBS NH 603-434-6225
CONNECTION-80 Peterborough, NH 603-882-5041
JOE'S ASYLUM, Dover, NH 603-742-0250
NET-WORKS Portsmouth, NH 603-436-3461
SOFTWARE REFERRAL SERVICE 603-625-1919
HUDSON BBS NH 603-883-2862
ABBS Vancouver, BC 604-437-7001
CBBS Prince George, BC CN 604-562-9515
LANDS END RCPIM, Sidney, British Columbia 604-656-9115
RCPIM CBBS Frog Hollow, Vancouver, BC, CN 604-873-4007
RCPIM RBBS Surrey, Vancouver, BC, CN 604-584-2643
RCPIM Terry O'Brien, Vancouver, BC, CN 604-584-2543

THE HOST Sioux Falls, SD 605-336-3935 *24
BILLBOARD 60 371-9219 *24
DATANET Cincinnati, OH 606-727-3011
THE HOST, Sioux Falls, SD 605-336-3935 *24
NKUBBS/PMS Cincinnati, OH 606-752-5685
THE RUPPEL-SET TBBS Cincinnati, OH 606-291-9255
BBS Lexington, KY 606-273-1920

TOWN CRIER BBS Binghamton, NY 607-648-2366
"THE COMMODORE DOMAIN" Ithaca, NY 607-272-4060
 9pm to 7am on weekdays, 6pm to 7am on weekends

BITS II, Madison WI 608-255-2755 *24

ABBS Turnersville, NJ 609-228-1149
GANDOLF BBS Plainsboro, NJ 609-799-4643
GREENE MACHINE Voorhees, NJ 609-429-4542 *24
KMMN PASCAL DBS Bellmawar, NJ 609-232-0773 *24
RATS Wenonah, NJ 609-468-5293
RATS Wenonah, NJ #2 609-853-8268
MILLWAYS Princeton, NJ 609-921-1994
TARI BOARD Maple Shade, NJ 609-234-9240
THE RATS WEST BBS 609-261-5498
THE TARDIS BBS 609-448-1361

ABBS Calvary Memorial Church 612-472-3895 *24
ABBS Calvary Mission Church, MN 612-471-0252
BBS Richfield, MN 612-869-0054
CAPTAINS LOG APPLE NETWORKS 612-377-7747
CBBS Richfield, MN 612-423-5016
COMMUNITIES/ABBS APPLE 612-333-8970
COMPUTER PLACE TRS 612-869-3246
CONFERENCE TREE -17 APPLE 612-854-9691 *24
ERIK'S NET NETWORKS/APPLE 612-920-3975
GOLIATH MCMS TRS 612-753-3082
HEATHKIT ZENITH 612-778-1213
KNIGHTS OF THE ROUND TABLE 612-457-4139
JOB SYSTEM, THE NETWORKS, APPLE 612-542-9597 *24
L5 MINNESOTA SPACE BBS, 612-920-5566 *24
LAWSG 612-872-2352
LOCI'S-NET 612-571-5965
MARIO'S HIDEOUT 612-645-0826
MASTER CONTROL 612-473-6668
MCMS MC SOFTWARE Minneapolis, MN 612-533-1957 *24
NC SOFTWARE 612-533-1957
PCJ-EXPRESS MN 612-644-6302 *24
PIRATE ISLAND 612-825-5852
PIRATES PLACE 612-781-9266
PMS Minneapolis, MN 612-929-6699
PMS Twin Cities 612-929-8966
SAFEHOUSE 612-724-7066
SIMPLE SIMON 612-432-0428 *24
SIMPLE SIMON RBBS Apple Valley, MN 612-432-8403
TERMINAL STATION 612-423-5048
TCO NARNIA, New Brighton, MN 612-636-6228
TWIN CITY ATARI INTEREST GROUP 612-432-3779
UNITED RBBS 612-731-1063
TC-AMS Minnetonka, MN 612-938-4799 *24

ABBS COMPUMART Ottawa, Ontario, Canada 613-725-2243
C.O.R.E. RBBS/RCPIM Reynoldsburg, OH 614-864-2673 *24
DELAWARE COUNTY Delaware, OH 614-363-1018 *24
DR. DOWNLOAD Granville, OH 614-587-3774 *24
ELECTRIC CHRONICLE New Albany, OH 614-855-1026 *24
MODERN MANIA (NETWORKS) Columbus, OH 614-475-9791 *24
BULLET-80 Ironton, OH 614-532-6920
OHIO VALLEY BBS 614-423-4422
T-T TECH LINE Westerville, OH 614-965-4378 *24
THE BANDIT Westerville, OH 614-895-7209
TODAY'S COMPUTERS Columbus, OH 614-436-0637
HEARTBREAK HOTEL Columbus, OH 614-837-1061
J.O.S.H.U.A. Columbus, OH 614-868-0660

BBS Westmoreland, TN 615-666-5887 7pm-12pm daily
BULLETING Hixton, TN 615-842-6809
COLOR-RAMA Crossville, TN 615-839-3130 *24
DIAL-YOUR-MATCH Knoxville, TN 615-573-9748
KNIGHT-LINE Nashville, TN 615-297-6037
RCPIM Cookeville, TN 615-528-5039
REBEL CORNER 615-983-6163 *24
ROCK CITY STUDENT BBS, Chattanooga, TN 615-875-6311 *24
TIBBS Knoxville, TN 615-573-2136
TIBBS Knoxville, TN 615-691-9558
THE BOARDWALK 615-359-2650
BBS 615-877-6781
ABBS COMPUTER ROOM Kalamazoo, MI 616-382-0101
AMIS G.R.A.S.S. Grand Rapids, MI 616-241-1971 *24
CBM-U COMMODORE Holland, MI 616-396-7106 *24
COMMUNITY TRADERS 616-731-5330 *24
CONNECTION-80 W. MI Micro Group MI 616-457-1840 *24
KEYIOUS, Needham, MA 617-449-4146 or 617-449-2589

*24
99ERS ASSOCIATION, Malden, MA 617-321-8214 *24
AMIS STARBASE 12 Philadelphia, PA 617-876-4885
ATHEX, Melrose, MA 617-662-4840 *24
BCS T199 BBS -1, Weymouth, MA, 300 baud, 617-331-4181 *24
BCS T199 BBS -2, Weymouth, MA, 300 baud, 617-335-8475 *24
B.C.S. T1-99/4A BBS, Lexington, MA 617-331-4181 *24
B.C.S. TELECOM BBS, Quincy, MA 617-472-1676 *24
BIG BOARD RCPIM, Newton, MA 617-965-7259 *24
BOSTON INFO EXCHANGE Boston, MA 617-423-6985 *24
BULLET-80 Boston, MA 617-266-7789 *24
CBBS Boston, MA 617-646-3610 *24
CBBS Lawrence General Hospital, Boston, MA 617-683-2119
CBBS MICROSTAR Worcester, MA 617-752-7284
COMPUTER BARGAIN GUIDE, Waltham, MA 617-899-0060 *24
DAVIS-INFO-NET, Cambridge, MA 617-576-1269 6pm-11pm
DIAL-YOUR-MATCH -17 617-334-6369
FORUM-80 Westford, MA 617-692-3973
NET-WORKS PIRATE'S HARBOR Boston, MA 617-720-3600
NEW ENGLAND COMP. SOC. Maynard, MA 617-897-0346
PIRATE'S CHEST, Waltham, MA 617-891-1349 *24
PMS APPLE GUILD Weymouth, MA 617-767-1303 *24
PMS COMPUTER CITY Danvers, MA 617-774-7516
THE PRO-9ER N. Reading, MA 617-684-5988 SYSOP Gary Blydenburgh *24
RCPIM MCBS SUPERBRAIN Lexington, MA 617-862-0781 *24
C64 ZONE & ONLINE ADVENTURE Duxbury, MA 617-837-4117
PIRATE'S HARBOR, Boston, MA 617-720-3600 *24
TERMEXEC ON-LINE NEWSLETTER, Lexington, MA 617-863-0282 *24
YELLOW DATA, Belmont, MA 617-489-4930 *24
NATIONSERV, Fairfield, IL 618-847-2291 *24

CBM-U COMMODORE Escondido, CA 619-746-4003 *24
CONNECTION-80 Escondido, CA 619-746-6265
ONLINE CDC San Diego, CA 619-452-6011
ONLINE SABA San Diego, CA 619-692-1961 *24
ONLINE Santee, CA 619-561-7271 *24
PMS COMPUTER MERCHANT San Diego, CA 619-582-9557
PMS DATEL SYSTEMS INC. San Diego, CA 619-271-8613
PMS Escondido, CA 619-746-0677
PMS Lakeside, CA 619-561-7277 *24
RCPIM RBBS San Diego, CA 619-273-4354 *24
SOUTHERN CALIFORNIA COMPUTER BBS, El Cajon, CA 619-282-3525
THE COMPUTER LOFT Poway, CA 619-271-9123 *24
THE COMPUTER LOFT II San Diego, CA 619-565-7340 *24
TI DATABASE, Chula Vista, CA 619-427-6154
TIBBS Fontana, CA 619-350-8583
TIBBS San Diego, CA 619-276-3173

COUNTRY MICRO Minot, ND 701-839-0390
TELE-BOARD Parshall, ND 701-862-3170 5pm-8am CST daily, 5pm Friday-8am Monday CST
BARONET Granville, ND 701-728-6552 *24
GAMING ONLINE/LAS VEGAS Las Vegas, NV 702-456-0626
OMS CENTURY 23 Las Vegas, NV 702-878-9106 *24
SIGNON Reno, NV 702-826-7234
SIGNON Reno, NV 702-826-7277
THE OWL, APPLE/FRANKLIN Las Vegas, NV 702-453-6250
ABBS SOFTWARE SORCERY Herndon, VA 703-471-0610
BBS Annandale, VA 703-978-9754
BBS IBM HOSTCOMM Fairfax, VA 703-978-9592 *24
BBS IBM HOSTCOMM Fairfax, VA 703-978-0921 *24
BBS IBM HOSTCOMM Fairfax, VA 703-591-5120 *24
BBS IBM HOSTCOMM Fairfax, VA 703-425-9452 *24
BBS IBM HOSTCOMM Springfield, VA 703-425-7229 *24
BBS IBM PC Annandale, VA 703-560-0979 *24
BBS IBM PC Dale City, VA 703-680-5220 *24
BBS IBM PC Vienna, VA 703-560-7803 *24
C-HUG BBS Fairfax, VA 703-360-3812 *24
CARRIER Alexandria, VA 703-823-5510
CBBS Amrad, Washington, DC 703-734-1387 *24
FORUM-80 Prince William City, VA 703-670-5881
POTOMAS MICRO MAGIC, Inc. Falls Church, VA 703-379-0303 *24
SWITCHBOARD Alexandria, VA 703-765-2161 *24
TCUG BBS Washington, DC 703-836-0384 *24
TRITECH'S BBS VA 703-998-7789
THE BELMONT CONNECTION Christiansburg, VA 703-382-0984
THE DISK CONNECTION, CPIM SYSTEM 703-644-2299 *24
RCPIM Arlington, VA 703-536-3769
RCPIM CBBS RLP Maclean, VA 703-524-2549 *24
ABBS Charlotte, NC 704-364-5252
A-BUG Asheville, NC 704-684-9436
BYTE-BUSTER BBS, CHARLOTTE, NC 704-366-9051, 8am - 9pm
CLEVELAND COUNTY BBS Shelby, NC 704-482-8012 *24
THE ENCHANTED CASTLE Asheville, NC 704-253-2035 *24
N.C. ATARI OUTLAWS Asheville, NC 704-253-1847 *24
SOUTHEAST AMIS Matthews, NC 704-541-3306 *24
TIE-TBBS Boone, NC 704-264-7381 3:12-2400 BAUD *24
WNCSS Boone, NC 704-262-1861 300/1200 BAUD *24

COAST BBS 707-964-7114 *24
NUB-64 DIRECT CONNECTION El Vallejo, CA 707-554-2424
RCPIM RBBS Napa Valley, CA 707-253-1523
SURVIVAL COMMUNICATION FORUM, Santa Rosa, CA 707-545-0746 *24

64 EXCHANGE (C-64 only) Houston 713-471-7458 *24
64TH DIMENSION Houston 713-568-9453 *24

ACOM ATARI Houston 713-530-0164 *24
ARTURUS APPLE Houston 713-550-4202 *24
BMBS 1984 Houston 713-778-9356 *24
CBBS COLOR GRAPHICS (C-64 only) Houston 713-392-4953
COLOR 80 Highlands, TX 713-426-7070
COMMODORE EXCHANGE Houston 713-496-7161 *24
COMPU-NET Houston 713-667-4787 5pm-9am and 24 hrs on weekends
COMPUTER TURNOVERS Houston 713-266-0711 *24
DATA FACT -1 Houston 713-271-0491
DATA FACT -2 Houston 713-271-0492
DATA FACT -3 Houston 713-271-0493
FIDO EL DORADO Houston 713-488-8771 *24
FIDO ROSENBERG EXPRESS Houston 713-342-9349 *24
GABBS GREAT APPLE Houston 713-455-9502 *24
GABBS VOX POPULI Houston 713-772-6096 *24
GOLDEN COCO TRS80 Houston 713-941-1542 *24
GREAT BRITAIN -2 Houston 713-482-4634
H.A.C.E. BBS ATARI Houston 713-644-6400 *24
HOTLINE BBS Houston 713-997-2461 *24
INFO-NET COMMODORE Houston 713-873-0403 *24
LEGION COMPU-NET Houston 713-667-4787
LEGION OF STRANGERS Houston 713-981-8657
LEGION MICRO COMPUTER EXCHANGE Houston 713-479-5754 *24
NASA ACTIVITIES Houston 713-280-8711 *24
NEC DELTACOMP Houston 713-583-0001 *24
NET-WORKS APPLE ASTRONOMY Houston 713-526-5671 *24
NET-WORKS ARTURUS Houston 713-550-4202 *24
NET-WORKS COMPUTER COOPERATIVE Houston 713-452-0346 *24
NET-WORKS DOC BOARD Houston 713-471-4131 *24
NET-WORKS DIGITAL DIMENSION Houston 713-497-4633 *24
NET-WORKS FANTASY VOYAGE Houston 713-488-9778 *24
NET-WORKS FLAGSHIP FRODO Houston 713-987-4163
NET-WORKS FREE FOR ALL Houston 713-495-5020 *24
NET-WORKS HACKERS Haven Houston 713-467-7113
NET-WORKS HALL OF RECORDS Houston 713-270-1427 *24
DIAL-YOUR-MATCH -32 Newport News, VA 804-838-3973 300 baud *24
THE GREAT GAMMA COLOR 80 BBS OF THE COLONIAL CAPITAL OF VIRGINIA Williamsburg, VA 804-887-5302
IBM PC RBBS Hampton, VA 804-851-1369 300/1200 baud *24
NBS Norfolk, VA 804-444-3392
PENINSULA COCO BOARD Tabb, VA 804-868-0922 300/1200 baud *24
RCPIM OXGATE Grafton, VA 804-898-7493 300/1200 baud *24
REMOTE NORTHSTAR Virginia Beach, VA 804-340-5246
TALK-80 ROBB Portsmouth, VA 804-484-9636
TIDEWATER APPLE WORKS, T.A.W.B.S. 804-543-7194 *24
VIRGINIA PASTE BOARD Hampton, VA 804-722-0935
VOLKSBOARD TBBS Newport News, VA 804-877-7141 300/1200 baud *24
ABACUS COM Bakersfield, CA 805-871-2725 *24
ALKER ENTERPRISES WHOLESALE-TO-THE-PUBLIC BBS Thousand Oaks, CA 805-496-0850
BBS IBM PC 805-987-4127
CBM-U COMMODORE Los Osos, CA 805-7475 *24
NOAH'S ARK Carpinteria, CA 805-684-8020 300/1200 baud *24
OXGATE BBS Santa Barbara, CA 805-682-3486 *24
Q-BOTS 805-644-0400
REMOTE NORTHSTAR Santa Barbara, CA 805-964-4115
SPACE * MISSILE COUNTRY IBM Santa Maria, CA 805-937-0124
THE COMPUTER CONNECTION Thousand Oaks, CA 805-496-0850
STARBASE (I) Oxnard, CA 805-486-1176 *24

ABBS COMPUTER CORNER Amarillo, TX 806-355-5610
BULLET-80 Littlefield, TX 806-385-6843
FIDO-NET -67 Lubbock, TX 806-795-0102
MCOS-TECH NET Lubbock, TX 806-742-2917
THE RED RAIDER BBS Lubbock, TX 806-793-1009
THE WINDMILL COMPANY Lubbock, TX 806-763-3375
CBBS STRICTLY SOFTWARE Honolulu, HI 808-944-0562
CONFERENCE TREE COMPUTERLAND Honolulu, HI 808-487-2001
NET-WORKS COMPUTER MARKET Honolulu, HI 808-521-7312
NET-WORKS HAWAII CONNECTION Honolulu, HI 808-423-1593
PET BBS San Juan, PR 809-781-0350
APPLE (RUN) on a Gabbs Program, Mindstorm 812-235-0908
ATARI (RUN) on a F.O.R.E.M. Program, T.H.A.T.S. 812-299-9891
COMPU-PRESS Evansville, IN 812-422-2700 *24
EVANSVILLE CONNECTION, Evansville, IN 812-479-9453 9am to 9pm Saturday and Sunday

ACTION LINK TIBBS 300/1200 BAUD Bradenton, FL 813-747-2081
ALPHA TAMP, FL 813-969-0512
BSBB Tampa, FL 813-885-6187
CBM-U COMMODORE Largo, FL 813-391-5219
CIDER MILL Apple Clearwater, FL 813-397-5763 *24
COCOBBS Sarasota, FL 813-924-2626
"FOR BETTERMENT OF MANKIND THROUGH COMPUTERS" SSP-BBS Cypress Gardens, FL 813-324-4416
GROUND ZERO 300 BAUD 813-922-7855 *24
THE INNER SANCTUM, Hudson, FL, 300/1200/2400 baud, 813-856-5071 *24
MICRO INFORMER 813-884-1506
MIS Tampa, FL 813-885-5443 *24
THE PHOENIX, TERRE HAUTE, IN 812-466-3478
RCPIM RBBS Tampa, FL 813-831-7276 *24
RCPIM RBBS Tampa, FL 813-988-7400 *24
SMITTY'S BBS Tampa, FL 813-875-8096 *24
ST. PETERSBURG, FL 813-866-9945
T.A.B.B. Tampa, FL 813-886-0284 *24
TAMPA BAY TIBBS 813-525-7998 *24
TELECOM-80/TWZ Tampa, FL 813-839-6746
THE PORT TAMP, FL 813-961-8483 *24
THE TAMPA BY BANDIT BOARD 813-937-3608 *24
TIBBS St. Pete, FL 813-526-1265, 813-525-7998

PHANTOM ACCESS 814-868-1884
RCPIM CUG-NODE PA State College 814-238-4857 *24
VINXBS, THE TEXAS INSTRUMENTS COMPUTER EXCHANGE BBS 814-774-4620 *24
TRADE-80 Erie, PA 814-898-2952 *24

THE DARK TOWER, Morris, IL 815-942-4294-10:15pm-7:00am
THE FIRST CHART-BOARD Woodstock, IL 815-337-0279 *24
GBBS-THE DARK CASTLE Galena, IL 815-777-3327 7am-11pm
MCMS J.A.M.S. Lockport, IL 815-838-1020 *24
NETWORKS-THE DARK CASTLE Shorewood, IL 815-729-0188 *24

A-BUG Mission, KS 816-523-0304
FIDO-KCM, Blue Springs, MO, 300/1200 baud, 816-229-1841 *24
FORUM-80 Kansas City, MO 816-861-7040 *24
FORUM-80 Kansas City, MO 816-931-9316
HOWARD'S NOTEBOOK Belton, MO 816-331-5868 *24
KANSASS CITY CABIN FEVER, INDEPENDENCE, MO 64052 (816) 795-0475 *24
KC HACK-SHACK Kansas City, MO 816-891-7753 *24
NET-WORKS ABC Kansas City, MO 816-483-2526 8pm-8am
APPLE SLICE Salt Lake City, UT 801-532-7235 *24
CBM-U COMMODORE Salem, UT 801-423-2734 *24
OUTER CHAOS Salt Lake City, UT 801-521-5966 *24

ABBS VERMONT Essex Junction, VT 802-879-4981 *24
ST80-CC LANCE MICKLUS, INC. Burlington, VT 802-862-7023
CHAMPLAIN-VALLEY-COMMODORE-USERS-GROUP (CVCUG) BURLINGTON, VT 802-658-3974

COMPUSYSTEMS Columbia, SC 803-771-0922
FORUM-80 Charleston, SC 803-552-1612 *24
MIDLANDS 80 COMPUTER CLUB Columbia, SC 803-776-8261 *24
MICRO & DATA SYSTEM Orangeburg, SC 803-534-5350
RCPIM RBBS Fort Mill, SC 803-548-0900 *24
NET-WORKS MS COUGAR Houston 713-645-5305 *24
MED-QUIP Houston 713-747-1232 *24
NET-WORKS PIRATES ISLAND Houston 713-266-5423 *24
NET-WORKS ROACH Houston 713-444-1653 *24
NET-WORKS S.S.P.C. Houston 713-484-8090 *24
NET-WORKS SULTAN'S CHAMBER Houston 713-723-9481 *24
NET-WORKS THE WEEKENDER Houston 713-492-8700 *24
NET-WORKS WIZARDRY Houston 713-952-3210 *24
NET-WORKS ZACHARY Houston 713-933-7353 *24
THE OTHER SIDE Houston, TX 713-955-9532
RAVICS COMMODORE EXCHANGE Houston 713-496-7161 *24

RBBS AMERICAN CONNECTION Houston 713-831-3768
RBBS BIT BUCKET Houston 713-332-4006
RBBS BRAINBUSTER Houston 713-776-8043 *24
RBBS CITIZENS FORUM Houston 713-526-3646 *24
RBBS COMMERCIAL ENERGY Houston 713-464-8814 *24
RBBS DRAGON'S LAIR Houston 713-729-9092 *24
EPSON TPM BBS Houston 713-546-3446
FRIENDLY BULLETIN BOARD Houston 713-661-2768 *24
RBBS GENESI 8 Houston 713-859-2750 *24
RBBS HUG BULLETIN BOARD Houston 713-583-1287 *24
RBBS HAL-PC NETWORK Houston 713-772-5609 *24
RBBS KINGCOMM Houston 713-360-1316 *24
RBBS NEC DELTACOMP Houston 713-583-0001 24
RBBS NHA Houston 713-774-4483
RBBS PC ALMANAC Houston 713-486-9800
RBBS PC EVE Houston 713-955-7564 *24
RBBS PACKET BOARD Houston 713-530-8596 *24
RBBS QUIJA BOARD Houston 713-772-5259 *24
RBBS THE LAST RESORT Houston 713-481-0455 *24
RBBS THE YELLOW ROSE Houston 713-333-4004 *24
RBBS OSBORNE Houston 713-497-5433 *24
RCPIM BAY AREA Houston 713-488-5619 *24
RCPIM CPIM Houston 713-523-5000 *24
RCPIM NEW AGE Houston 713-464-2330 *24
SEABROOK MICRO'S Houston 713-482-5526 *24
SOBBS HOUSTON GAZE BOARD 713-521-3584 *24
SOBBS HOUSTON SWINGSWIFT 713-370-2292 *24
SOBBS POOR MAN'S BBS Houston 713-451-6455 *24
SOBBS R.A.M.S. Houston 713-859-4409 *24
SOBBS TEST MDE TRS80 Houston 713-660-9252 *24
TALK TO ME TRS80 Houston 713-481-2100
TBBS CITYSCOPE Houston 713-477-7475 *24
TBBS FREELANCIN' ALVIN 713-331-2599 *24
TBBS FREELANCIN' HOUSTON 713-488-2003 *24
J.L. CHRISTIAN BBS Houston 713-721-0888 *24
TBBS PSEUDONYM (MCUA BBS) Houston 713-895-8111 *24

THE CONNECTION Egypt Houston 713-481-6203 *24
THE PYRAMIDS OF HUNGARY Houston, TX 713-955-7226
POLICE-NET Houston, TX 713-873-0403 *24
ABBS Riverside, CA 714-688-3204
THE ACADEMY, Placentia, CA 714-528-1074
AMIS ATARI DOG HOUSE Riverside, CA 714-787-9600
BBS IBM HOSTCOMM Claremont, CA 714-624-1767
BULLET-80 Orange County, Anaheim, CA 714-952-2110
COMMODORE CORNER, Moreno Valley, CA 714-242-7440 *24
COMNET-80 Riverside, CA 714-359-3189
COMPUNET Anaheim, CA 714-978-9829

The Performance Leader

Here's Why, • Knowledgeable Staff • Same Day Shipping on in stock Items • Reliable



\$225.00

New Star
SG10

New Okidata 192

Sale Price **\$359.00**

Apple Disk Drive
(Shugart)
\$139.95

Panasonic 1092
\$425.00

**We are competitive
Prices change frequently!
so, please call!!**

COMPUTERS

Corona Computer Systems \$AVE
Franklin Ace OMS w/Free Monitor... \$950.00
IBM Computers \$CALL
Sperry Computers \$Best Price

PRINTERS:

C. Itoh
Prowriter 8510 AP \$310.00
7500 Series \$220.00
Citizen
Citizen MP-10 \$299.00
Citizen MP-15 \$450.00

New Epson
LX-80 \$249.00
FX-85 \$359.00
FX-185 \$CALL
RX-100 \$349.00

Okidata
New Microline 182 \$AVE
Okidata Microline 192 \$359.00
Okidata Microline 193 \$589.00
Okimate 20 color \$Best Price

Panasonic
Panasonic 1090 \$199.00
Panasonic 1091 \$265.00

★ New Star Micronics
SG-10 \$225.00
SG-15 \$375.00
SD-10 \$339.00
SD-15 \$499.00

Letter Quality
Toshiba 1340 \$AVE
Brother
HR-15XL \$355.00
HR-25 \$AVE

Daisywriter 2000 \$859.00

w/48K Buffer

Juki 6100 \$BEST PRICE

Juki 6300 CALL \$AVE

MODEMS:

Anchor
Volkmodem 1200 \$199.00
Signalman Mark XII \$225.00

Hayes
Smartmodem 300 \$159.00
Smartmodem 1200 \$389.00
Smartmodem 1200B \$375.00

Free Smartcom
Micromodem II/E \$169.00
Hayes Smartcom II \$65.00

MONITORS:

Amdek
New Color 300 \$225.00
New Color 500 \$BEST PRICE
New Color 600 \$425.00

Gorilla Green \$85.00

Princeton
HX-12 \$455.00

SR-12 \$599.00

Taxan Amber, Taxan Green \$CALL

Zenith
Green \$95.00

Amber \$119.00

DISKETTES:

Fuji
SS/SD \$16.95
SS/DD \$18.95
DS/DD \$24.95

Maxell
Maxell MD-1 \$14.00
Maxell MD-2 \$17.00

SPECIALS:

IBM Computer Motherboard .. \$149.00
AST 6 Pak Plus \$219.95
20 lb. Laser Edge Paper \$27.95
Koala Graphics Tablet-Apple, IBM \$74.95
Kraft Joysticks \$34.95
Kraft Paddles \$29.95
512 Memory Board \$70.00
JRAM-2 \$175.00
Expansion Boards PC-Jr \$CALL
384K Multifunction \$149.00

COLUMBIA
DATA PRODUCTS, INC.

\$25.00
1 Year
Replacement Warranty

OKIDATA

NEW!

DATACARD
BY SGL WABER

Super System
Cooling Fan
(for Apple)
• 2 Outlets
• Surge Suppression

PANASONIC 3151
Daisywheel 15"
\$399.00

Computer & Printer
Covers
Variety of Sizes

Hayes Smartcon II
\$75.00

Apple IIc Disk Drive
\$139.00

Novation

AST 6 Pak 64K
\$249.00

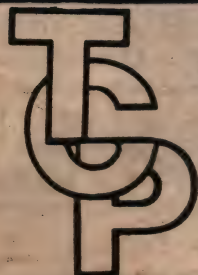
Hayes Smartcon II
\$75.00

KENNINGTON
MICROWARE

EPSON
STATE OF THE ART SIMPLICITY

TERMS: Mastercard and Visa are gladly accepted. There is a 3% credit fee with \$3.00 minimum. Please include a phone number. • COD orders accepted—please add \$3.00. • There is no tax on an out of state shipment. • CT residents please add 7.12% Sales Tax. • All orders returned or refused are subject to a 10% restocking fee. • All prices are subject to change without notice. • Team Computer Products is not responsible for typographical errors or omissions. For your protection we check for stolen credit cards. All orders are screened carefully for fraudulent orders. Retail prices may vary. Returned material must be in original condition and subject to approval before an RMA is issued.

IBM Compatible Motherboard 8 slots 256K on Board \$149.00
IBM Computer Case \$59.00



WRITE FOR FREE CATALOG

TEAM COMPUTER PRODUCTS

30 Broadway • North Haven, CT 06473

24 Hour National Order Desk: 203-239-6923

Price and Technical Support Make All The Difference

SOFTWARE SHOPPING LIST

NAME: MASTER MENU

TYPE: A hard disk management tool

COMPUTER: IBM and compatibles

DESCRIPTION: A menu interface for hard disk users which includes an automatic batch file generator; a shell to DOS; nine levels of password security; a time log recorder to track computer usage; time display, calendar, appointment scheduler, and scratchpads; and on line help.

PUBLISHER: Micro Concepts Inc., 4307 Arden Drive, Ft. Wayne, IN 46808, (219) 432-8088

COST: \$142.50

NAME: BUSINESS ASSISTANT

TYPE: A family of integrated office support programs.

COMPUTER: Motorola Series 2000 and 6000 UNIX-based

DESCRIPTION: A complete set of integrated office application tools designed to increase office productivity when used in conjunction with Motorola's departmental processing systems and host communications capabilities. Business Assistant can do document creation and retrieval, business analysis and planning, departmental communications, information inquiry, office services, and information presentation.

PUBLISHER: Motorola Information Systems, 10700 De Anza Blvd. Cupertino, CA 95014, (408) 864-4783.

COST: Entry level configuration with full-featured word processing and integrated spreadsheet and graphics capabilities is approximately \$2400.

NAME: SNOBOL4 +

TYPE: general programming language

COMPUTER: IBM PC and all MS-DOS compatible computers

DESCRIPTION: Encompasses all of main-frame SNOBOL4 and adds numerous useful features for the personal computer user. Its pattern matching capabilities provide the tools for designing algorithms that would be difficult to express in other languages. Has many diverse applications which include: text preparation and formatting, artificial intelligence, music analysis, cryptography, natural language translation, plus many other areas of the humanities, engineering, and science. Has speed and simplicity ideal for writing "throw-away" programs for data file reformatting and program analysis.

PUBLISHER: Catspaw, Inc., (800)624-0023, in N.J. call (800)624-0024

COST: \$95.00

NAME: LEARNING TO WRITE WITH EMBERLEY, Series 1: UPPER CASE LETTERS and Series 2: lower case letters

TYPE: Series for pre-schoolers

COMPUTER: Apple IIe, IIc, and Commodore 64, 128

DESCRIPTION: These programs take the child step-by-step through the formation of each letter. By pressing the appropriate letter, the child animates the action on the screen.

PUBLISHER: Right on Programs, 1737 Veteran's Hwy, Central Islip, NY 11722 (516) 348-1577

COST: Not provided

NAME: FALCON PATROL

TYPE: Game program

COMPUTER: Commodore 64 and 128

DESCRIPTION: In this game program the user controls a Falcon Fighter equipped with the latest air-to-ground and air-to-surface missiles to combat the enemy's helicopter-attack squadrons. This program features excellent 3D graphics and sound effects and has 16 levels of play, each more difficult than the previous.

PUBLISHER: Artworx Software Company, Inc., 150 North Main Street, Fairport, New York 14450, (716) 425-2833

COST: \$19.95

NAME: SORCERY

TYPE: Game program

COMPUTER: Commodore 64 and 128

DESCRIPTION: This game program is a very challenging adventure game in an arcade-like setting. Featuring marvelously detailed graphics and animation effects, Sorcery turns you into the last of the great sorcerers. Many have thought you were killed in a bygone age. But time has given you a new strength and powerful spells with which to conquer back your homelands and to restore the rich life of a past era.

PUBLISHER: Artworx Software Company, Inc., 150 North Main Street, Fairport, NY 14450, (716) 425-2833

COST: \$19.95

NAME: METHODS

TYPE: Programming language

COMPUTER: IBM PC and compatibles

DESCRIPTION: This object-oriented programming environment furnishes a powerful tool for prototyping solutions to complex problems. Typical applications of Methods include education, process control, and finance. Using a mouse, pop-up menus, windows, color, and an innovative virtual machine architecture for fast execution, Methods is an ideal tool for developing man-machine interfaces, expert systems, and computer-aided instruction tools.

PUBLISHER: Digitalk, Inc., 5200 W. Century Blvd., Los Angeles, CA 90045, (213) 645-1082

COST: \$250

NAME: NEW BUST-A-PROGRAM

TYPE: Game program

COMPUTER: C-128, C-64, C-16 and the VIC-20

DESCRIPTION: The object of this game is to load, save, copy and gain entrance into the basic program listing-by discovering and using the secret programmable clues. The further you get into the program the more clues you will get. The program will also specify places to go for help, and included is a built in help file. The program is some real fun and will test your programming knowledge. The program will also show you how to copy and list protect your own programs. When you break into the program listing and modify it, you will have a chance at winning some computer products. Some versions also have speech synthesis.

PUBLISHER: Creative Enterprises, P.O. Box 4253, 1714 Sandalwood, Thousand Oaks, CA 91360, (805) 492-0568

COST: \$12.95

NAME: REFERENCE SET

TYPE: memory resident that gives personal computer users instant access to Random House Dictionary and Random House Thesaurus

COMPUTER: all IBM PC/XT/AT and compatible computers

DESCRIPTION: Allows users to check spelling of words or find synonyms and insert changes directly into text without having to exit programs or save files. Works with all popular word processing programs. Requires PC-DOS or MS-DOS version 2.0 or later, 128K memory, either two floppy disk drives or a hard disk.

PUBLISHER: Reference Software Inc., 2363 Boulevard Circle, Walnut Creek, CA 94595, (415) 947-1000 in Ca., (800) 826-2222

COST: \$89.00

NAME: FRENCH VERBS I and II

TYPE: Programs for studying French

COMPUTER: Apple II series (64K)

DESCRIPTION: Simple guidelines allow students to predict gender and accents. Programs introduce, reinforce, and review any text. Students translate complete sentences from English to French, then follow up with a game for quick review of verb endings.

PUBLISHER: Rodan Associates, 1566 Arbor Avenue, Highland Park, IL 60035, (312) 831-4532

COST: \$30.00 each

NAME: THE WATER WORKS

TYPE: water billing system for municipalities under 32,000 in population

COMPUTER: IBM PC, IBM XT, IBM AT, or IBM PC Compatible

DESCRIPTION: Automates the computing and printing of water bills for municipalities. Includes an option for sewer charges. Uses a two-way mailer, generates client mailing labels, meter reading report, tracks gallons used and sold, and provides various user reports.

PUBLISHER: Ryberg Computer Service, 704 Broadmoor Drive, Bloomington, IL 61701

COST: \$395.00 - Introductory offer

NAME: BOTTOMLINE-V, for Lotus Jazz

TYPE: A corporate financial decision support system for business planning, "what-if" analysis, budgeting, and corporate financial simulation

COMPUTER: Macintosh

DESCRIPTION: Helpful in raising venture capital, increasing lines of credit, and obtaining S.B.A. loans. The system has four modules: Historical Financial Analysis; 12-Month Sales Forecast, Budget and Cash Flow; Quarterly Forecasting Mode; and Five-Year Forecasting Model, plus Quarterly and Five-Year budget projections. Bottomline-V supplies the format, equations, and logic. The user inputs data variables and decisions. The system then produces 5-Year and quarterly proformas of P & L, Balance Sheet, Statement of Changes in Financial Position, and complete Financial Ratio Analysis Statement.

PUBLISHER: Ilar Systems, Inc., 1300 Dove Street, Suite 105, Newport Beach, CA 92660, (714) 476-2842, (800) 828-7257, Ca. only - (800) 523-7201

COST: \$295.00

NAME: ABILITY-ACHIEVEMENT DISCREPANCY (AAD)

TYPE: micro program that assists in placement of child in appropriate special education program

COMPUTER: Apple II series computers

DESCRIPTION: Will assess degree of academic underachievement based on ability and achievement tests. Meaningful interpretation is printed using correlations built in or users may enter their own correlations. Reliabilities are also built in, or user may include own reliability value.

PUBLISHER: Southern Micro Systems, 716 E. Davis Street, Burlington, NC 27215, (800) 334-5521

COST: \$89.95. Each additional disk is \$29.00.

NAME: BRAINZ-GAMZ

TYPE: Companion to Bainum Dunbar Brainz, highly-acclaimed authoring system

COMPUTER: Apple IIe or IIc

DESCRIPTION: Just as easy to use and uses the same Lesson diskette as Bainum Dunbar Brainz. English, Spanish, French, and German are still available. On-screen instructions are provided for both instructor and student. Teachers and parents can develop lessons containing their own information through use of several set formats (5 games and 1 test). Includes a third diskette, the DataBank, for storing up to 300 questions for use in any games and tests. Has ability to print out questions from the DataBank and students' scores.

PUBLISHER: Bainum Dunbar, Inc., 6427 Hillcroft, Suite 133, Houston, TX 77081, (713) 988-0887

COST: \$79.95

NAME: DISK OPTIMIZER

TYPE: performance enhancer for disk storage, providing several additional functions for the user.

COMPUTER: IBM and compatible personal computers

DESCRIPTION: For users with hard disks, compatible with virtually all types of disk drives. Increases the performance of disks by collecting the pieces of a file and re-storing them together physically. Similar information is stored together, according to its sub-directory. Free space is contiguous so that new information is quickly written. Disk access times is reduced, resulting in immediate increase in speed for most operations.

PUBLISHER: SoftLogic Solutions, Inc., 530 Chestnut Street, Manchester, NH 03101, (800) 272-9900

COST: \$49.95 (special introductory price)

NAME: PROSPECTING

TYPE: Application program

COMPUTER: Data General/One portable computer, any CP/M or MSDOS

DESCRIPTION: Designed to increase the efficiency of sales and marketing professionals, prospecting stores, searches, and analyzes a wealth of information about customers or prospects and their product interests. The system will print personalized letters using letter files created by most word processors. In addition, the system prints envelopes, cards, labels, status reports, and marketing analysis reports. Other features include multi-user capabilities, password protection, and extensive file searching.

PUBLISHER: Key Systems, 512 Executive Park, Louisville, KY 40207, (800) 223-5637

COST: \$395.00

NAME: MONITOR

TYPE: Apple Pascal system monitor

COMPUTER: Apple II+, IIe or IIc

DESCRIPTION: Pops up in any program. Features are notepad, keyboard macros, calculator, print-screen, windowing, memory and disk edit, number converter. Interactively assemble, disassemble and execute 6502 code. Edit functions include find, replace, move, store, character and hex displays. Directory, load, save and purge functions allow easy disk access. Enter notes into a program as a macro. Calculate with trig, log and exp functions.

PUBLISHER: dogStar Software, P.O. Box 302, Bloomington, IN 47402 (no phone listed)

COST: \$49.00

NAME: PRNSPOOL

TYPE: a print spooling MS-DOS device driver

COMPUTER: MS-DOS, Z-DOS, or PC-DOS

DESCRIPTION: Frees up computer while output is being printed and provides additional flexibility and features to the DOS Print command. Output from word processors, compilers, spreadsheets, and other programs can be spooled directly without ever exiting the application program. Can support multiple printers and plotters on the one computer system allowing for simultaneous and independent spooling to every device and provides the user with complete spooling control from the DOS command level. Control functions include pausing and resuming printing, clearing the spooling buffer, and examining the status of the spooler.

PUBLISHER: Generic Computer Products, Inc., P.O. Box 790, Marquette, MI 49855, (906) 249-9801

COST: \$39.95

NAME: DEPRECIATION-MASTER II V3.0

TYPE: Fixed-assets accounting system

COMPUTER: IBM-PC and compatibles, Zenith Z100, Kaypro 11/4, Epson QX-10, Heath/Zenith Z90, and most other CP/M-80 based systems

DESCRIPTION: Software for any CPA, banker or small business. Provides not only ease-of-operation (completely menu-driven), but flexibility in accounting methods, output formats, and inventory file expansion. Supports all IRS depreciation methods (straight-line, sum-of-the-digits, declining balance, etc.), and seven different report formats are provided including Tax Form 4562 output.

PUBLISHER: Generic Computer Products, Inc., P.O. Box 790, Marquette, MI 49855, (906) 249-9801

COST: \$249.00, includes custom 3-ring binder, 90-page manual, and software registration form

NAME: EDIT

TYPE: Document and program editor

COMPUTER: Apple IIe or IIc

DESCRIPTION: Features keyboard macros for all tasks, with macro learn mode, find/replace, insert, delete and copy buffer, exchange text and case, up/down scrolling, and several moves. Search and copy from disk files. Adjust margins, centering, adjust tabs, and line wrap/unwrap to format and print documents directly. A filer module includes load, save, append, purge, disk directory and crunch functions. Batch mode lets you do repetitive tasks on several files. Edit supports Pascal compiler error checking, and direct compiling or assembly.

PUBLISHER: dogStar Software, P.O. Box 302, Bloomington, IN 47402 (phone not listed)

COST: \$39.00

NAME: MINDWHEEL, ESSEX, BRIMSTONE, and THE ANCIENT ART OF WAR

TYPE: The first three are "Electronic Novels" (interactive fiction), and the fourth is a strategy game.

COMPUTER: Macintosh

DESCRIPTION: The first three present the user with adventures in which he or she becomes the central character of the story. Because the programs utilize a real-time universe, the action and characters constantly change. Written by established authors, the novels are packaged in hardbound book form, with a disk included. The fourth is a strategy game that lets players choose from eleven pre-planned battle campaigns or design their own and match their wits against historical opponents.

PUBLISHER: Broderbund Software, Inc., San Rafael, CA, (415) 479-1170 or 329-8880

COST: Suggested retail price - \$44.95.

NAME: THE DATA REPORTER

TYPE: Complete information management software tool

COMPUTER: IBM PC or compatible computers and the Apple II series computers

DESCRIPTION: User may create new data formats, enter information into files, and print reports by selecting options from a series of simplified menus, without having to memorize complex command sequences. Suitable for use by both novice and experienced user requiring the complete power of a data base system.

PUBLISHER: Softwest Programming, 4418 E. Chapman Ave., Suite 156, Orange, CA 92667, (714) 380-9437, Telex: 6502502780

COST: Not provided

NAME: ST/20

TYPE: Streaming tape unit

COMPUTER: IBM AT, XT, PC and compatibles

DESCRIPTION: A high-speed, low-cost backup for Winchester hard drives. A half-height internal tape drive using specially-engineered digital tape cassettes. Can read and write a Winchester's full 20 megabytes in under five minutes. Has own controller board which fits standard IBM, and compatible, expansion slots. Either mirror image or file-by-file backup; data retrieval from either backup. Allows file-by-file restore to floppy drives. Operates with either MS-DOS or PC-DOS. Functions completely menu-driven.

PUBLISHER: Magnetic Memory Corp., 2550 Ninth Street, Berkeley, CA 94710, (415) 548-3448

COST: \$795.00

NAME: SUPERDOS

TYPE: A complete set of enhancements for Radio Shack's TRSDOS 1.3

COMPUTER: TRSDOS 1.3

DESCRIPTION: Along with super fast boot-up, SuperDos removes all password checking, logs the system files into the directory as normal files, contains a "short" directory format, and maintains the long TRSDOS directory format while eliminating the directory screen scroll problem. It features a new high memory version of DEBUG which allows for the dumping of any area of memory even below the previously unavailable 5600 hex.

PUBLISHER: DiskCount Data, 2701-C West 15th Street, Suite 612, Plano, TX 75075 (214) 680-8268

COST: \$29.95

LOOK WHAT YOU GET FOR \$995



STANDARD COMPUTER XT

STANDARD FEATURES: XT

- * Fully IBM PC/XT equivalent.
- * 8 expansion slots.
- * 256K memory (expandable to 640K on board).
- * 135W switching power supply.
- * Easy flip-top computer case.
- * Floppy disk controller w/cable (controls up to 4 drives).
- * 2x 360K half height Teac floppy disk drives.
- * Deluxe keyboard.
- * Hi-res color graphics card (fully compatible w/IBM color graphics card).
- * Top-of-the-line Taxan hi-res green monitor.
- * Complete w/Standard Computer MS-DOS version 2.11 licensed by Microsoft.

- * Detailed operation manual.
 - * Microsoft Macro-assembler included.
 - * 1 year warranty including parts and labor.
 - * Complete system ready to plug-in and run.
 - * Assembled and tested in U.S.A.
- Satisfaction Guarantee or Money Back within 15 Days!*

SPECIAL INTRODUCTION:

Standard Computer Turbo system. Same hardware features as Standard XT plus:

- * Dual speed CPU (4.7MHz - 6.7MHz) 45% faster than IBM PC/XT.
- * Indicator light for turbo mode.
- * Push-button reset.
- * Complete w/640K memory.

ONLY \$1,195

ORDER TOLL FREE
1-800-824-2936
OUTSIDE CALIF.

1-800-662-6111
INSIDE CALIF.



MONTHLY SPECIAL:



FREE

Personal computer starter kit valued \$98 with purchase of Citizen MSP-10 Printer at only \$295. Call for prices on other Citizen Models.

MONITORS

TAXAN 425	\$395
TAXAN 620	\$395
TAXAN 411	\$319
EMI GREEN TTL.	\$ 99

KEYBOARDS

Standard 5151	\$109
Standard 5060 AT keyboard	\$105

ADD-ON BOARDS

1200B Internal Modem w/software (fully Hayes compatible)	\$225.
Standard multifunction board w/384K	\$179.
Floppy disk controller w/cable	\$49.
384K memory expansion card w/0k	\$79.
Color graphics card w/printer port (short card)	\$109.
I/O card for PC, XT and AT	\$90.
AT 1MB memory board w/0k	\$125.

HARD DISK

10MB w/controller	call for latest price.
20MB w/controller	call for latest price.
Power Supply Special 135W	\$82.

Computer Products United

**1147 E. Broadway, #43
Glendale, CA 91205**

**Information Call:
(818) 796-8684**

ABC ELECTRONICS

315 7TH AVENUE NORTH
MINNEAPOLIS, MINN. 55401
1-612-332-2378

DISK DRIVES

OCTOBER SPECIAL

QUME 592, New	\$69.99
QUME 542, New	\$69.99
QUME 842, New	\$99.99

Shugart 800-2 R.F.E.	\$79.99
Shugart 850 R.F.E.	\$139.99
Shugart 851, R.F.E.	\$159.99

R.F.E. = Removed From Equipment

DISK DRIVE CASES

Dual 8 in. Drive case w/fans. 19½W x 17½D x 7H	\$69.99
Single 8 in. Drive case w/fan. 11W x 19D x 6½H	\$49.99

MISC.

RS 232 Extension cable, 10 ft.	\$9.99
RS 232 Extension cable, 25 ft.	\$14.99
Quadram Quad 512 + 128K memory expansion board, new factory cartons	\$109.99
Verbatim 8 inch diskettes, 10 pack, New	\$9.99
Multi-Tech Model MT103J 300 BPS originate/answer modem, new	\$99.00

PRINTERS AND ACCESSORIES

MANNESMAN DOT MATRIX PRINTER

MODEL 140I Draft Quality Print, Optimized, Bi-Directional Printing.

MODEL 140L Draft Quality Print, Near Letter Quality Printing. DRAFT QUALITY @ 160 CPS (9x7 Dot Matrix) - Near Letter @ 40 CPS (18x40 Dot Matrix) 10 CPI.

CHARACTER DENSITY 10, 12.5 And 16.7 CPI, Line Spacing, 6/8 LPI.

CHARACTER SET 8 Sets of 96 Characters with True Descenders US, German, French, Italian, Swedish, Danish, British and Spanish.

CHARACTER LINE 132 @ 10 CPI, 165 @ 12.5 CPI, 220 @ 16.7 CPI.

PAPER FORMS Single Part or Multipart (5 part) Business Forms, 16 Inch Maximum Width.

VERTICAL FORMS Operator Selectable Control of 4, 5, 6, 8, 8.5, 11, 12, or 14 Inches.

MANUAL or Software Selectable Parameters.

VOLTAGE 120/220/240 Switch Selectable.

BUILT In Test Generator, Power Cord, and Complete Instructions.

RS-232C Serial Interface 110 to 9600 Baud.

*** LIMITED QUANTITIES ***

*** REMOVED FROM LIGHT SERVICE AND TESTED ***

MODEL 140I....\$250.00	MODEL 140L....\$290.00
TRACTOR FEED ATTACHMENT....\$10.00	

ABC ELECTRONICS
1-612-332-2378

POWER SUPPLIES

Motion Power Supply, Input: 115 VAC, Output: 5 @ 2.2 Amp, 24 @ 2.4/4.2 peak, 6¾ x 5 x 2½. New\$34.99

Power One Power Supply Model CP282, Input: 110 or 220, Output: 5V @ 4A, + 15V @ 4A, - 15V @ 3A, Preset OVP, New\$49.99

Power One Model #CP366A. Input: 115VAC 47-63 Hz. Output Regulated: + 24VDC @ 3.0A, + 12VDC @ 2.0A, - 5VDC @ 0.75A. Unregulated: + 6.6VDC @ 0.5A. New, each\$29.99

Boschert Switching Power Supply Model #OL803549P, Input: 110 or 220 primary, Output: + 24V @ 3A, + 12V @ .5A, - 12V @ .5A, + 5V @ 3A, New\$49.99

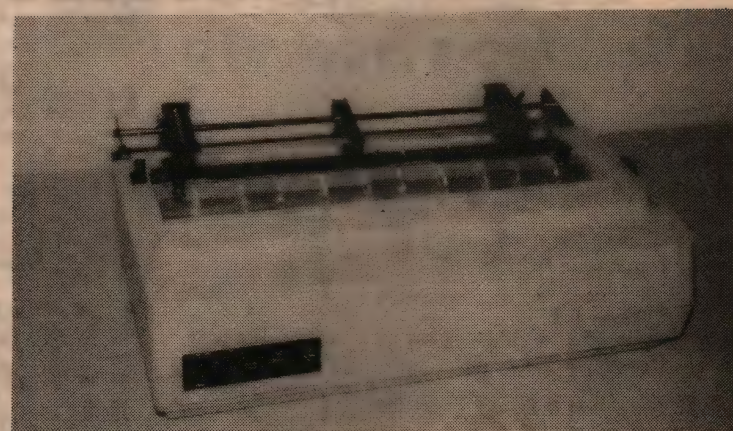
Atari 115V Primary 11.5 VDC Sec. 1.9 Amp, New \$9.99

Atari 115V primary 9.5 VOC sec. 1.9 Amp, New \$9.99

Power One power supply mod. #HAA15-8-A input 115 VAC, output ± 15VDC at 0.8 Amps or ± 12VDC at 1 Amp.Call

Condor Model #B5-3.0 OVP. Input: 115VAC, Output 5V @ 3A, 4 x 5 x 1 5/8, New\$19.99

MANY OTHER POWER SUPPLIES IN STOCK,
PLEASE CALL WITH YOUR NEEDS.



DIABLO HI-TYPE II UNI-DIRECTIONAL TRACTOR FEED ATTACHMENT

Will work on all 1600 Series, 1700 series, and 2300 series.

DIABLO #24345-06, NewPRICE — \$40.00

QUME SPRINT 11/55 PLUS CUT SHEET FEEDER

AUTOMATICALLY Feeds From An Adjustable Paper Tray For Printing in Vertical or Horizontal Format Tray Detents Are Set For Letter Size Paper (8.5x11), Single Bin Feeder, NewPRICE — \$40.00

TERMS: Add \$5.00 shipping and handling charge. Minnesota residents add 6% sales tax. Send money order or cashier's check for immediate delivery. Allow 3 weeks delivery for orders accompanied by a personal check.

ALL ITEMS: WHILE SUPPLY LASTS!!

ONE MONTH ONLY!

FREE BOX OF 10 DISKETTES

With every \$200 purchase! TOLL FREE 1-800-321-3552



IBM®
20 MEG
SYSTEM

ONLY **\$2895**

- 20 Meg. Hard Drive w/controller
- 256K Ram 1 Drive
- Amdek 310A Amber Monitor
- Monochrome Card
- DOS 2.1



CWI
PCXT
Model 104
IBM
Compatible
Mother Board

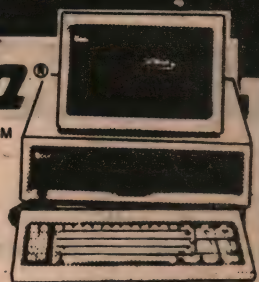
ONLY **\$895**

- 256K RAM Expandable to 640K
- 8 Expansion Slots
- Built-In Capability to Boot from Network Hard Drive Without Floppy
- Full 135 Watt Power Supply
- Full Function Keyboard
- 90-Day Warranty
- Monitor not included

BEST BUY!

Same as Model 104 with 1-360K Floppy Drive and 20 MEG Hard Disk Drive w/Controller.... Only **\$1795**

COMPAQ®
DESKPRO™
20 MEG
SYSTEM



ONLY **\$2995**

- 256K RAM
- 1-360K Floppy Drive w/Controller
- Amdek 310A Monitor
- DOS 2.1

printers



	OUR PRICE
Brother HR-15	\$365
Brother HR-25	\$649
Brother HR-35	\$875
Epson All Printer Models	Call
NEC 2010, 2015, 2030	\$639
NEC 2050	\$654
NEC 3510, 3515, 3530	\$1215
Okidata All Printer Models	Call
Panasonic 1091	\$265
Panasonic 1092	\$349
Panasonic 1093	\$519
Panasonic KXP3151	\$459
Toshiba P1340 Parallel or Serial	\$549
Toshiba P351 Parallel or Serial	\$1165

add-on boards

MDS MULTIFUNCTION CARDS	LIST PRICE	OUR PRICE
OK Same as AST Six Pack	\$349	\$169.95
64K	\$449	\$189.95
256K	\$549	\$209.95
384K	\$649	\$229.95
Six Pak Plus 64K AST	\$395	\$239.95
Mega Plus 64K AST	\$395	\$269.95
I/O Plus AST	\$165	\$119.95
Preview AST	\$399	\$309.95
Quadboard No RAM	\$269	\$234.95
Quadboard 64K	\$395	\$275.95
Quadlink	\$680	\$449.95
Quad 512 Plus 64K	\$325	\$239.95
Quadcolor I	\$295	\$209.95
Quadcolor II	\$275	\$209.95
Quad 2 MEG w/512K	\$1195	\$995.95
Quad 2 MEG w/1 MByte	\$1995	\$1695.95
Quadmeg-AT 1 MEG	\$2465	\$1995.95
128K RAM Chip Kit for AT	\$359	\$125.95
64K RAM Chip Kit	Save	\$14.95
AT-Memory Master plus	\$495	\$429.95
AST Advantage-AT	\$595	\$479.95
Hercules Color	\$245	\$189.95
Hercules Graphic	\$499	\$339.95
Mono display adapter	\$225	\$139.95
Mono display adapter w/parallel	\$250	\$169.95
BoB Hi-res display adapter	\$595	\$469.95
Time Spectrum SB 384 w/64K	\$395	\$299.95

diskettes

	OUR PRICE
MDS Bulk 50 & Up, Box of 10 SS/DD	\$6.95
MDS Bulk 50 & Up, Box of 10 DS/DD	\$8.95
Diskettes come w/5 Year Warranty	
3M 5 1/2" SS/DD (Box of 10)	\$17.95
3M 5 1/2" DS/DD (Box of 10)	\$24.95
BASF 5 1/2" SS/DD (lots of 10)	1.45 ea.
BASF 5 1/2" DS/DD (lots of 10)	1.75 ea.
VERBATIM 5 1/2" DS/DD (lots of 10)	2.25 ea.

modems

	LIST PRICE	OUR PRICE
HAYES 1200B w/o Smartcom II	\$539	\$369.95
HAYES 1200B for IBM PC	\$599	\$399.95
HAYES Smartmodem 300	\$289	\$199.95
HAYES Micromodem IIe	\$299	\$239.95
HAYES Smartmodem IIc	\$399	\$249.95

accessories & supplies

	LIST PRICE	OUR PRICE
IBM PC style printer cable	\$54	\$19.95
Standard parallel cable	\$40	\$19.95
RS-232C serial cable	\$30	\$24.95
5150 Basic Time, Keyboard	\$209	\$149.95
5151 Basic Time, same as		
Keytronics Keyboard	\$299	\$179.95
ISO-BAR 4 Receptacle	\$89	\$59.95
ISO-BAR 8 Receptacle	\$99	\$69.95
TRIPPLITE 200 Watt UPS	\$359	\$289.95
TRIPPLITE 425 Watt UPS	\$539	\$459.95
Head Cleaning Kit 5 1/2"	\$24.95	\$9.95
Evco disk case holds 50 disks	\$19.95	\$9.95
Paper 18/lb 8x11 microperf		
3000 ct case	\$49.00	\$28.95
Paper 18/lb 14x11 greenbar		
2600 ct case	\$54.00	\$36.95

software

	LIST PRICE	OUR PRICE
ASHTON-TATE, Framework dBase III	\$695	\$409
BRODERBUND, Bank St. Writer PC or Jr.	\$80	\$49
HARVARD, Total Project Manager	\$495	\$299
Harvard Project Manager	\$395	\$235
LOTUS, 1-2-3 Symphony	\$495	Call
MICROPRO, Wordstar	\$695	\$465
MICRORIM, RBase 5000		\$209
MULTIMATE, Ver. 4.0	\$495	\$419
SOFTWARE PUBL. PFS:		\$299
SORCIM, SuperCalc III		Call
BORLAND, Sidekick (PC or Jr.)	\$395	\$245
Sidekick (Copiable)	\$55	\$35.95
(PC or Jr.)	\$85	\$55.95

drives

	LIST PRICE	OUR PRICE
10 MEGABYTE Internal	\$1350	\$549.95
20 MEGABYTE Internal	\$1800	\$699.95
33 MEGABYTE Internal	\$3298	\$1569.95
33 MEGABYTE External	\$3388	\$1999.95
10 MEG Half-High Tape	\$1000	\$579.95
BERNOULLI Boxes from IOMEGA		
10 Mbyte system IBM PC	\$2695	\$2189.95
20 Mbyte system IBM PC	\$3895	\$2589.95
Extra 10 Mbyte Cartridge	\$100	\$59.95

monitors

	LIST PRICE	OUR PRICE
Amdek 300G	\$179	\$139.95
Amdek 300A	\$199	\$149.95
Amdek 310A	\$230	\$179.95
Amdek Color 300	\$349	\$269.95
Amdek Color 500	\$525	\$399.95
Amdek Color 600	\$650	\$449.95
PGS MAX-12	\$269	\$189.95
PGS HX-12 640x240	\$699	\$469.95
PGS SR-12 720x480	\$799	\$629.95
PGS Scan-Doubler	\$299	\$199.95
14 Inch Quadchrome II	\$599	\$499.95
Taxan 440 ultra Hi-res RGB	\$799	\$599.95
Taxan 210 RGB/Composite	\$349	\$289.95
Taxan TV Tuner for RGB Mon.	\$99	\$89.95

MICRO DATA SUPPLIES



- VISA
- MASTER CARD
- MONEY ORDERS
- C.O.D. (Under \$500)

TOLL FREE
1-800-321-3552

IN OHIO & OTHER INQUIRIES 216/481-5515
22685 EUCLID AVE. CLEVELAND, OHIO 44117

Prices reflect 3% cash discount. Product shipped in factory cartons with manufacturer's warranty. Please add \$6.00 per order for UPS shipping. Prices & availability subject to change without notice. Send cashier's check or money order - all other checks will delay shipping two weeks. P.O.s accepted from Fortune 1000 companies (surcharge applicable).

If a competitor's price on 256K RAM is lower than ours, please bear in mind that we are selling high quality Japanese brands, which cost us more.

ICs PROMPT DELIVERY!!!

SAME DAY SHIPPING (USUALLY)

OUTSIDE OKLAHOMA: NO SALES TAX

640 Kbyte MOTHERBOARD KITS: IBM PC/XT
Zenith 150 & 100, Compaq Portable & Plus: \$68.42

8087-2 COPROCESSORS \$145.00

DYNAMIC RAM

256K	256Kx1	120 ns	\$ 3.50
256K	256Kx1	150 ns	2.69
128K	128Kx1	120 ns	6.75
64K	16Kx4	150 ns	2.75
64K	64Kx1	150 ns	1.10

EPROM

27C256	32Kx8	250 ns	\$11.95
27256	32Kx8	250 ns	5.75
27128	16Kx8	250 ns	3.20
27C64	8Kx8	150 ns	5.25
2764	8Kx8	250 ns	2.75
2732A	4Kx8	250 ns	2.95

STATIC RAM

6264LP-15	8Kx8	150 ns	\$4.50
-----------	------	--------	--------

QUANTITY ONE PRICES SHOWN

OPEN 6½ DAYS: WE CAN SHIP VIA FED-EX ON SAT.

ORDERS BY
Th: Std Air
Fr: P-One
NO EXTRA
COST ON
F-EX SAT
DELIVERY

MasterCard/VISA or UPS CASH COD

Factory New, Prime Parts μP_{∞}

MICROPROCESSORS UNLIMITED

24,000 S. Peoria Ave., (918) 267-4961
BEGGS, OK. 74421

Prices shown above are for September 23, 1985

Please call for current prices. Prices subject to change. Please expect higher or lower prices on some parts due to supply & demand and our changing costs. Shipping & insurance extra. Cash discount prices shown. Orders received by 6 PM CST can usually be delivered to you by the next morning, via Federal Express Standard Air @ \$6.00, or Priority One @ \$15.00!

We believe we do everything better than our competitors.*

We sincerely appreciate your business.

COMPUTER SHOPPER™

Mart

Showcase page is a new service to advertisers whereby high quality products can be displayed in the most economical fashion and at the highest visibility. Please contact these and other advertisers telling

them where in Computer Shopper you saw their advertising. Advertising inquiries about this showcase page addition, which will appear monthly, should call: 305-269-3211.

BUILD YOUR OWN IBM PC COMPATIBLE AND SAVE!!! We Provide:

A. Assembled & Tested Board, B. Easy Board (Less IC), C. Bare Board

	A	B	C
PC/XT Compatible 8-Slot Motherboard (OK, No Bios)	\$168	\$68	\$25
Color Graphic Card	\$100	\$36	\$15
Disk Drive Card w/cable	\$55	\$25	\$12*
Printer Card w/cable	\$30	\$18	\$10*
512K Ram Card (OK)	\$63	\$36	\$15
83-Key Keyboard	\$70		

*No Cable

Cash, Certified Check, Money Order, Personal Check, Visa/MC or Cash COD Accepted.

Shipping & Handling Per Order: UPS Ground \$3.00, UPS Blue \$6.00

COD \$2.00 Extra

AMT TECHNOLOGY

17045 El Camino Real, Suite 201

Houston, Texas 77058 (713) 480-9506

DISK MAILER Safe Mailing!

Use to mail your 5 1/4" disks. Holds: 1, 2 or 3 disks. Made of 200* test corrugated board. Color is Marble White. Order *DM-5 Min. order: 20 for \$13.00*

•Only 65¢ each•

(*plus \$3.00 sh. & hdlg.)

ASK FOR FREE CATALOG.

1-800-225-0044

WEBER & SONS, INC

P O BOX 104-DM

ADELPHIA, NJ 07710

ONLY \$36

COMPUTING INTERFACES

The System Integrator's Notebook

From theory to part numbers: a new monthly newsletter. Theory and new interfaces for the experienced system integrator. Interface tutorials and step-by-step for the less experienced or those who just want to save money adding peripheral devices to their PC. About old friends (RS-232, ST-506/412) and new (SCSI, ESDI, IPI, V.22 bis). Technical articles, new products, interface news, reviews, business developments, standards, market reports, and a special "How-to" section, The System Integrator's Workbench. North America: \$88/145/206 for 1/2/3 years. Charter rate: Companies \$58 (POs accepted), Individuals \$36.

Visa/MC/AmEx/PO call

1-800-443-0100, Ext 352.

Any Time. Toll Free.

or mail to COMPUTING INTERFACES, P.O. Box 1296, Ridgcrest, CA 93555.

SALE!!!

COMPUTERIZED GREETING CARD

Unique software turns any monitor into a greeting card. Choose 1 of 9 tunes. 1 of 7 Graphics-Xmas, New Years, Bday, Anniv., Wedding, Graduation, Promotion; add your own message. Reusable! IBM & Compatible with color graphics.

VISA and MC accepted. Delivery 4-6 wks.

NOW ONLY \$19.95

Regularly \$29.95

P.O. Box 48110

Los Angeles, CA 90048

GOLD MINE ENTERPRISES

Don't settle for less! The best single-entry alternative to those double-entry systems.

Checks & Balances

Runs on any CP/M or MS-DOS computer including the IBM-PC.

- * Easier to use & more power than programs costing much more.
- * Simple English commands - no menus!
- * Compiled in assembler for speed. Not a Basic program like Home Accountant.
- * More char's allowed for memos/notes with each transaction - Dollars & Sense makes little sense with no memo!
- * Prints checks, labels, rolodex, 3x5 cards.

Only \$74.95 * Not Copy Protected CA residents add 6.5% tax \$4 P&H, COD \$4 extra. Outside USA, \$10 P&H, no COD. Sorry, no VISA/MC. Manual only, \$10 + P&H, refundable on purchase.

VALCON

1260 Westwood St., Redwood City, CA 94061

(415) 369-2034

Ask about Discounts for User Groups

WORDSTAR COMMAND POSTER

Large (24" x 36") poster displays all WordStar commands. Two colors, heavy paper. \$5.00+P&H.

Flat, rolled: \$5.00+2.50

Folded: \$5.00+1.00

Texas residents add 5.125% Sales Tax

MARCOM

Box 477, Seabrook, TX 77586

Dealer Inquiries Welcomed

ORANGE COMPUTERS INC.

PO Box 301

Mims, Florida 32754

TRS-80 Model 1 + LNW-80 Software and Hardware

Dos Plus 3.5 \$35

Small Business Pkg. \$75

Mini Terminal Pkg. \$20

Electric Pencil \$25

LNW PC Boards CALL\$

LNW Manuals CALL\$

Connection-80 BBS \$25

Order 305-639-1563

BBS 305-631-2061

STOP

Your Ad Displayed Here

For Only

\$100.00

CALL: 305-269-3211

FOR DETAILS

IBM COMPATIBLES

Eagle Spirit 2	\$1270
Eagle Spirit XL	\$1950
Eagle PC Plus	\$1355
Eagle PC Plus XL	\$2100
Eagle Turbo 2	\$1700
Eagle Turbo XL	\$2375
Eagle Turbo GT	\$3395
12" Mono Chrome Monitor	\$150
Mono Chrome Card	\$170
Wyse PC 1100-1 (Includes Monitor)	\$1695.75
Wyse PC 1100-2 (Includes Monitor)	\$2970.75
Wyse Color Monitor and Board	\$620.50
Bob Persyst Board	CALL
Tatung Monitors	CALL
Tall Tree JRAM Boards	\$180

PRINTERS

Tally Spirit 80	\$210
Citizen MSP 10	\$381.65
Citizen MSP 15	\$551.65
Citizen MSP 20	\$551.65
Citizen MSP 25	\$721.65
Toshiba 1340	\$600

All Software Cost + 10%

FIVE LOAVES TWO FISH COMPUTERS
995 State Hwy. 507, Centralia, WA 98531
Phone 206-736-0367

apple Repair Kit

apple patch™ all new IIe version

\$89.95 plus \$2.50 shipping

Kit Includes: Slipcover and Binder, New 65 page Manual, Selected ICs (15 or 33), Chip Puller

"First Impression -- WOW." -RGP

"I have been using Apple Patch IIe for the past few months, and am astounded at its usefulness...being both a resource manual and a parts kit." -Lincoln Schools

Ivle Computer Corporation
460 N. University Ave #204
Provo, UT 84601
(801) 373-1313

A Great Stocking Stuffer!

COMPUTER SHOPPER

For yourself or a friend at

Special Holiday Rates. See Center



MX-80 USERS

Our easy to install modification will increase your print speed by more than

33%

- Installs in 15 minutes •
- No change in print quality •

ONLY \$29.95 postage paid

HDS, Inc.

P.O. Box 1359

Eustis, FL 32727-1359

MONEY BACK GUARANTEE

IBM PC JR OWNERS

ADD-ON DISK DRIVES STARTING AS LOW AS \$295

This is a user-installed add-on drive package featuring everything you need, including a replacement disk controller board for operating up to three disk drives, a two-drive cable, either one or two external 360K drives with cases and power supplies, plus software for operating the extra drives.

With one external 360K - \$295.00
With two external 360K Drives - \$449.00
Just the Controller Board & Software - \$149.00

To order: Call or Write

JIA J & M SYSTEMS, LTD.

15100-A Central SE
Albuquerque, NM 87123 (505) 292-4182

IBM and PCjr are registered trademarks of International Business Machines Corp.

ONLY

- 99 ea.

BACKSIDERS Double Notched Disks 2 TIMES THE DISK! ONE LOW PRICE

FOR APPLE, COMMODORE, TRS-80, ATARI & KAYPRO

USE BOTH SIDES BY SIMPLY FLIPPING THEM OVER

10 DISKS - \$9.90

TO ORDER SEND CHECK/MONEY ORDER PAYABLE TO:

BACKSIDERS

P.O. Box 23

Canton, CT 06019

All Orders Add \$3 For Shipping

*** Micro-Lab ***

The Fisher Instruments Micro-Lab is an "I/O expander" that has been designed to work with virtually any computer in nearly any language. It can be the source of Stimulus and Control, provide Measurement and regulated Power as well as a "bread-broading" area for your designs.

- Micro-lab features:
- * +/- 5 vdc supplies
 - * +/- 12 vdc supplies
 - * (4) Chan A/D
 - * (1) Chan D/A
 - * 16 Bits Input
 - * 16 Bits Output
 - * Audio Amp & Speaker
 - * Xtal Oscillator
 - * Eight Bit Counter
 - * 896 Pin Patch Panel
 - * RS-232
 - * 300 to 19200 Baud
 - * (3) 16 Bit Programmable Counters

\$249 + \$3.50 shipping (WA residents add 7% tax)
FISHER INSTRUMENTS
Suite 205C, 15127 NE 24th C-3
Redmond, WA 98052
(206) 481-9231

Computer Products & Peripherals Unlimited

Great Bargains
Since 1975



COMPUTER BARGAINS WHOLESALE & RETAIL!

Off-Lease, Excess, Pre-Owned and New



617/372-8637

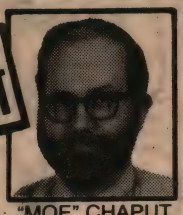
MINIMUM ORDER \$50.00

Master Card & Visa Accepted - Sorry No Collect Calls

WAREHOUSE: 18 Granite St., Haverhill, Mass. 01830
MAIL ORDERS: Box 204, Newton, New Hampshire 03858



TIM JENNINGS



"MOE" CHAPUT

PRICES DO NOT INCLUDE PACKAGING, SHIPPING & HANDLING

6 Pen
P.C. Graphics Plotter

Brand New!
HEWLETT PACKARD
HP-7475A-RS-232-C I/O
• 8 1/2" x 11" or 11" x 17" Paper
• 115v or 220v 50 or 60 Hz.
• Auto Pen changing
(Fiber Tip) 0.001" res
• Approx. 23" x 15" x 5" h
• Includes Manual & Shipping

Reg. \$1895.
Now at this low price
Quantity
Discounts Available

\$1445

SOME REAL BARGAINS - They're Worth A Call!

- Burroughs R-2 Word Processor Systems,
tested Oper'l, w/printer \$695.
- Epson MX 80 Printer, Centronics I/O,
Tested, oper'l New \$179.
Used \$149.
- Epson MX 80-III FT Printer, W/Tractor
& Platen, oper'l New \$199.
Used \$169.
- G.E. "Terminet 1200," RS-232, ULC Band,
tractor not incl. 1 oper'l, 1 untested TWO FOR \$229.
- Sony 3 1/2" Microflops, Brand New, Unused \$179.

Qume "Sprint-3" Widetrack Daisy Printers
• New, unused, in orig'l boxes **Brand-New!!**
• Features the Sprint 3 interface & built-in power supply
• Original price over \$2500 each!

STILL ONLY \$1,190

Buy One... Get One FREE!

The G.E. "TERMINET 1200"
120 cps RS-232-C · 110, 300 & 1200 Baud
(11, 30 & 120 cps) · 60 lines/minute · Com-
pact, table-top configuration · Upper & lower
case continuous band · Made in USA by
General Electric.

1200 KSR TWO FOR \$249.
..... TWO FOR \$249.

DATAPRODUCTS DRUM PRINTERS
2200 SERIES
REDUCED!!
FROM \$495

2230 300 lpm \$495.00
2260 600 lpm 995.00

SHUGART Floppy Drives

Used, whole, untested less P.S. & Case. RFE,
Data included.

Tandon TM100-2, 5 1/4" DSDD ... Used \$59.

CDC/MPI 9409, 5 1/4" DSDD ... Unused \$99.

CDC/MPI 9404, 8" SSDD ... Used \$69.

MPI Model 52 & 52S, 5 1/4" DSDD ... Unused \$39.

..... Used \$59.

Shugart SA-901 (Sim to SA-800/801) 8" SSDD ... Used \$39.

*DSDD SA-400 Shugart Compatible w/most Systems

12" Video Monitors

Tested & Untested

Model #XM-351 Series. These popular monitors fea-
ture: 12" diag. CRT, adj. horiz. bandwidth and scan
rate up to 80 x 24, isolated power supply, 115/230 VAC
operation, 50/60 Hz, "less" brightness and contrast con-
trols. Requires composite video input (2 wire).

Ready for case of your choice. Used. Data and schematics included.

12" Composite input CRT, tested, oper'l \$19.

9" Burroughs, "Composite," used w/case, requires P.S. \$40.

12" Ball Bros., TTL input, Unused \$39.

8" "Winchesters"

5, 10, 20, 40 Meg

Shugart SA-1000 I/O Compatible.

Tested, operational...Includes power supply
& case, data & schematics.

USED & NEW

Quantum 2040 40 Mb. Unused in boxes \$1,200.

Quantum 2040 40 Mb, Used, tested, operational 1,000.

Quantum 2020 20 Mb, Unused, in boxes 695.

Shugart SA-1004, 10 Mb FROM 149.

Shugart SA-1002, 5 Mb, untested 89.

5 1/4" "Wini" Tandon, Seagate & Quantum 5/40 Mb FROM 105.

PARALLEL, TTL INPUT I/O "SELECTRIC"

TYPEWRITER/PRINTER These machines have built-
in driver and decoder circuitry and take TTL level,
6-bit character, plus a 4-bit function input signals.
Easily driven by most any micro. Use as a typewriter
(with add'l "repeat" circuitry) or as a KSR I/O printer
or both. "Table Top" style case.



\$129.00

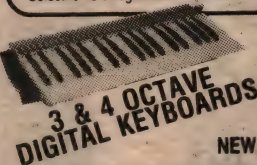
"Selectric" "Centronics" I/O Interface For Above Printer

Standard "Centronics" Parallel Input

Complete Kit for the do-it-yourselfer \$199.00

Completely Assembled & Tested,
Ready to Use \$299.00

"Selectric" is a registered TM of IBM



**3 & 4 OCTAVE
DIGITAL KEYBOARDS**

NEW, UNUSED, Keyboard FROM \$39.

DEX 4100 FACSIMILE (FAX) MACHINES

with Separate XMIT & RCV Sections

Transmit & Receive, photos & documents over phone lines
from other Standard Telecopiers. Use as low cost copier. Fea-
tures auto feed of originals, built-in roll feed, im-
age cutter for automatic sizing & "photo" mode
for the grey scale & halftones.

\$179.

Get Parts Machine For \$50.00
when you purchase regular machine @ \$179.00

Tested &
Operational

USED, RS-232 ASCII TERMINALS

Whole, clean

"Smart" Terminal \$89.00

"Dumb" Terminal \$69.00

"Micro" Power Supplies

- Light Weight "Switching" type
- Small, compact and powerful!
- Powers micros, term'l's, DD's
& others

Model	+5V @ 8A	\$29.	+5V @ 6A	Model
A	12V @ 3A		-5V @ .5A	B
	-12V @ .25A		+12V @ .5A	

KEYTRONIX ASCII KEYBOARD

- Single voltage Supply (+5)
- 8 bits + strobe outputs

(Other codes avail.) Standard typewriter/TTY keyboard. Brand New \$39. ea.
Perfect for term'l's, "HAM" RADIO & Others. (Lot Qty's Avail.)

Microcomputer Switching Power Supply

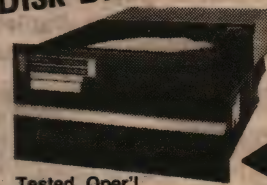
- +5v @ approx. 6A
- +12v @ approx. 3A
- +30v (+24V) @ approx. 1A
- 12v @ approx. 1A

UNTESTED \$25.00

CDC 9427-H "HAWK" "Cartridge" Disk Drives

12 Mbyte
(10 Mb formatted)

5440 type Disk Drives with
User Set Sector Counts.
2400 RPM. 200 TPI capa-
bility. Diablo type interface.



Tested, Oper'l

Special \$350.

Untested \$150.

Monitor Specials

unused

12" Ball Bros. or
Panasonic 2/50\$

9" Panasonic
with extra power
supply 2/74\$



TEKTRONIX GRAPHIC TERMINAL 4012 FULLY OPERATIONAL!

- Fully Operational
- Accepts MFR's opt'l I/O
- Bistable Storage Display
- Industry Standard
- Full ASCII Char. Set
- 1024 x 780 Pt. Display
- U.S. built, found in sophisticated CAD/CAM Systems
& other applications. 96 Char. ASCII Keyboard,
Selectable Baud Rate & other control features. Orig-
inally sold \$6725.

Unused! \$1195

A Fantastic Buy!

GE "Terminet" 340

"BAND" LINE PRINTERS

High Speed Line Printer Ideal For Microcomputers

- 230 to 340 Line per Minute!
- Fully Formed Characters
- Parallel Input!
- Microcomputer Compatible!
- 132 Columns, 64 Characters
- Nationwide Service from GE!

These ultra-reliable, continuous-band printers offer speeds of over
230 lines per minute are fully operational. Built & serviced nationwide
by General Electric. Print band, schematics and data included.

RS 232 & Centronics Interfaces available
- Call for Specifics.

\$595.

Diablo's Highest Quality O.E.M. Daisy Printers

HYTYPE-II 1355WP

Uses Xerox Metal Wheels or Plastic Wheels

• Original OEM Interface (Diablo Interface)

• Requires ±15V @ 5A & 5VDC @ 5A

• Positional access to 1/120 "Horiz" 1/48 "Vertical"

• USED BY XEROX, WANG & OTHERS

• Heavy Duty Printwheel Motor and 15" Frame

Still the Best!!!

\$349.

These fabulous daisy printers feature 35-40 cps, 10 & 12 pitch as
well as proportional space and plotter capabilities. Only a power
supply and interface are required for full printer capability. Fully
tested and operational, ready to configure for the interface of your
choice. Platen and I/O data included.

Spare P.C. Board Set (6 P.C. Cards) \$295.00

Spare Printwheel carrier assembly 229.00

Serial & Parallel Interface for Above 295.00

COMPUTER SHOPPER™

Mart

Showcase page is a new service to advertisers whereby high quality products can be displayed in the most economical fashion and at the highest visibility. Please contact these and other advertisers telling

them where in Computer Shopper you saw their advertising. Advertising inquiries about this showcase page addition, which will appear monthly, should call: 305-269-3211.

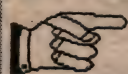
Temperature Sensing & Digital Control C-64 Apple II's

MDI Cards Provide for:

- 8 Remote Temperature Probes
- 10° to 100°C, 100's of Feet Away.
- 8 Channel A/D Converter for General Data Acquisition
- 0 to 5 Volt Inputs
- 6522 VIA Fully Available for Remote Control with 16 I/O Lines
- Special Applications Help Available

Prices as low as \$65 - Basic Card
Call or write for flyer

**MOUNTAIN
DESIGN, Inc**
1923 Woodland Ave.
Fayetteville, AR 72703
(501) 442-6840



CP/M

GRAPHICS

CP/M COMPUTERS (56K SYSTEM MIN.)
EPSON (RX) AND GEMINI COMPATIBLE
DOT MATRIX PRINTERS

PasteBoard can:

- Create/Generate simple figures
- Combine figures (Add, Cut, Intersect)
- Edit figures - 80 column full screen graphics editor.
- 7 different sizes of lettering in a graphics figure.
- Include Graphics in ASCII text or Wordstar printout.
- Best if 2 disk drives used (1 poss.)

To Order send: \$59.95 + \$2.50 S/H to
KBD SOFTWARE
207 Dorcas Ct., Mt. Laurel, NJ 08054
(Specify disk format)

FUJITSU

Micro 16s Owners

New World Digital
OFFERS PRODUCTS DESIGNED FOR THE
FUJITSU Micro 16s

NWD 512 K MEMORY BOARDS
NWD HARD DISK DRIVERS
INTERNAL OR EXTERNAL
YOU CAN HAVE A 10 OR 20 MEGABIT
HARD DISK INSTALLED IN YOUR Micro 16s

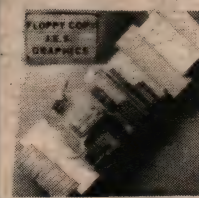
NWD 8" DISK DRIVE SYSTEMS
ALSO BEING OFFERED
MEMORY BOARD UPGRADE - IF YOU OWN
A 128 K OR A 256 K MEMORY PCB FOR A
MICRO 16s, NEW WORLD DIGITAL CAN
REPOPULATE THE BOARD IN OUR PLANT
TO 512 K OR 1026 K

WRITE FOR DETAILS

New World Digital
2521 1/2 S. VISTA WAY, SUITE 225
OCEANSIDE, CA 92054
619 439-4482

FLOPPY COPY

FOR THE TRS-80 MODELS
THREE, FOUR, AND FOUR-P



\$99.95

GUARANTEED TO COPY ALL

MODEL ONE, THREE, FOUR,
AND FOUR-P PROGRAM
DISKS!!! ALSO COPIES
ATARI, IBM AND MANY MORE!!
J.E.S. GRAPHICS, P.O. BOX
2752, TULSA, OK. 74101
(918) 742-7104

The StockRoom
A stand-alone Inventory
Program for IBM-PC / PC
compatibles.
Ideal for retailers
or wholesalers.

Some features are:
add, change or delete from
stock. Set reorder points. Sorted
printouts with ave. cost, gross
profit and margins and more.

\$89.95

Free Fact Sheet.
**RCS Systems
Development**

P.O. Box 126
Seneca Falls, New York 13148
315/568-6165

80 TRACK FOR PC/XT & AT

731k & 810k formats for PC DOS.
Dependable hi-density storage.
Use inexpensive 96 tpi drives.
Transparent to PC DOS 2.0-3.1.
Single-drive 80-track copy utility.
Most efficient 800k format.
Sectors allocated one/cluster.
Optional spacebar menu w/help.
Works with fixed disk & Vdisk.
No extra drive spec letters.

Driver software, formatter, tutorial

44⁹⁵ **DATADISK**
Box 15313
Santa Fe, NM
87506

VISA/MC OK
Tech, dealers: 505-579-4496

1200k AT-type drives — \$199
1200k 5"/8" controller — \$159

LIMITED TIME OFFER

64K RAM **\$3⁵⁰**
9-CHIP SET 1000 QTY.

- 64K @ \$5.35 • 256K @ \$21
- 100 - 64K sets @ \$3.90 each
- 1,000 - 64K sets @ \$3.50 each

DISKETTES
U.S. MFG.
IBM Std.
Jacket

68¢
LOTS OF 1000

QTY 5 1/4" DS/DD SS/DD
20 \$17 \$15
100 \$80 \$70
1,000 \$750 \$680

Send check or money order. Add appropriate
sales tax. Order by phone for C.O.D.
PRICES SUBJECT TO CHANGE WITHOUT NOTICE
ORDER BY PHONE TOLL FREE
1-800-423-5624
Calif. Residents dial 1-800-352-5689

FEMTOTRONICS
P.O. BOX 7511 DEPT. 89A MESSIAH HILLS, CA 91348



Your Ad
Displayed
Here
For Only

\$100.00

CALL: 305-269-3211
FOR DETAILS

RIBBONS GALORE

Brother HR15-25-35 Nylon... \$4.40
Diablo Hytype II M/S \$3.60
Epson MX-RX-FX/80 \$3.75
Epson LQ1500 \$6.05
NEC Pinwriter P1/P2 \$9.95
Radio Shack LPVI/VIII \$4.20
TI 850/855 \$6.35
NO RELOADS — COLORS, TOO!
VERBATIM BULK DISKS
SS/DD start \$1.85 — DS/DD start \$1.95
FREE CATALOG

GK ENTERPRISES

7215 W. NATIONAL AVENUE
WEST ALLIS, WI 53214
(414) 259-1657



ANGLED
PRINTER
STAND

Save Space, Time & Backaches!!
Std & Dlx/80 & 132 Col Width
Strong Modern Acrylic
Dlx w/shelf Fits over Disk
Std-80 \$21.95; Std-132 \$28.95;
Dlx-80 \$32.75; Dlx-132 \$39.75
+ S/H: 80 Col \$3.50/132 Col \$5.50
TX Res. Add 5.125%

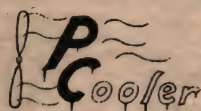
SOUNDFOAM

No Minimum! Buy What You Need!
Reduces Computer Noises
Only \$2.85 Sq. Ft.

SUPPLIES

Quality Items at Low Prices!

Disks: Name Brand & Bulk
Ribbons: Black & Color
Paper: Small or Large Quantities
Storage Units: Great Prices!
COMPUTER MEDIA MARKETING
P.O. Box 614, Katy, TX 77492
(713) 392-2385



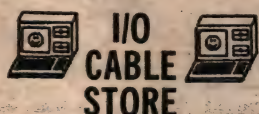
PC Cooler for the IBM PC/XT
Professionally designed

High temperature is the computer's
worst enemy. If your cabinet is
warm to the touch, it is too hot
for long reliable performance.
You need a PC Cooler.

Easy, one minute installation.
Quiet operation. 90 Day Warr.

\$49.50 Cash, Check, MO
Personal checks add two weeks.

B H Thrasher & Associates
3996 Hield Rd. N.W.
Palm Bay, Fla. 32907
(305) 727-0959



P.O. Box 29183
Shreveport, LA 71149

318-688-0721

IBM Printer Cable.....\$15
CENT Printer Cable.....\$15
CENT Gender Changer....\$30
CENT Switch Box A-B....\$78
CENT Switch Box A-B-C-D \$125

MANY MORE!!!

VISA & MC

IBM Selectric Printer/Typewriters

15" Carriage
Parallel and/or Serial
Accept Standard ASCII Code
Interchangeable Type Elements
Letter Quality
\$369 complete

Ron's Electronics

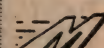
N5009 Sunset Vista
Onalaska, Wis. 54650
1-608-783-5341

RIBBONS DISCOUNT PRICES

NEW • TOP QUALITY • NO RELOADS

Apple Imagewriter \$3.85
C. Itoh Pro-Writer, I-II \$3.85
Diablo Hy-Type II M/S \$2.95
Epson MX-70, MX-80, MX-82 ... \$3.95
Epson MX-100, RX-100, FX-100 .. \$5.95
Epson LQ-1500 \$5.25
Okidata \$1.85
80, 81, 82, 83, 92, 93
Okidata Microline 84 \$3.75
Radio Shack L.P. 6/8 \$3.95

TERMS: Send check or money order. Add
\$1.95 shipping & handling per
dozen or any fraction. Michigan
residents add 4% sales tax.



Master-Media Supply
303 W. Brooks • Howell, MI 48843
(517) 548-3620

COMPUTER SHOPPER



SHIRTS

ALL SIZES
\$5.00
+ SHIPPING

COMPUTER SHOPPER

P.O. BOX F
TITUSVILLE, FL 32781
1-805-269-3211

Business and Professional

Accounting

ASHTON-TATE	
dBase III IBM	350.00
dBase III Update IBM	138.00
Framework IBM	350.00

BPI	
Accounts Payable	Apple 375.00
Apple 249.00 IBM 375.00	
Accounts Receivable	Apple 375.00
Apple 249.00 IBM 375.00	
Association Management IBM	495.00
BPI Accounts Payable Ite Apple	249.00
BPI Accounts Receivable Ite Apple	249.00
BPI General Accounting Ite Apple	249.00
BPI Payroll Ite Apple	249.00
BPI Personal Accounting IBM	125.00
The Business Analyst IBM	125.00

Church Management Accounting	Apple 325.00 IBM 495.00
General Accounting	Apple 249.00 IBM 375.00
Inventory	Apple 249.00 IBM 495.00
Job Cost	Apple 375.00 IBM 495.00
Payroll	Apple 249.00 IBM 375.00
Time Accounting System Apple	Lisa 249.00

BRODERBUND	
Accounts Receivable Apple	249.00
Accounts Receivable Ite Apple	249.00
General Ledger with Payables	Apple 325.00
Payroll Apple	249.00

CDEX	
dBase II Training IBM	48.97
Easy Writer Training IBM	48.97
How to Use Apple Ite Apple	41.97
How to Use IBM PC/XT IBM	48.97
IBMPC DOS 2.0 Training IBM	48.97
Managing Your Business w/Multiplan	Apple 41.97 IBM 48.97
Managing Your Business w/1-2-3 IBM	48.97
Managing Your Business w/Supercalc	IBM 48.97

Managing Your Business w/Visicalc	Apple 41.97 IBM 48.97
SuperCalc Training IBM	48.97
VisiCalc Training Apple 41.97 IBM	48.97
WordStar Training IBM	48.97

COMPREHENSIVE	
C-64 Tutor	20.97
Intro. to Personal Computing IBM	41.97
PC Tutor-Intro. to Operating System IBM	41.97

CONTINENTAL	
Learn to Type (Ite. Ite.)	Apple 28.00 IBM 28.00 C-64 28.00

Communications

ALPHA SOFTWARE	
Apple-IBM Connection IBM	165.00

DOW JONES	
Connector IBM	34.97

KENSINGTON MICROWARE	
Easy Link Mail Manager IBM	66.50
Remote Control IBM	120.00

NOVATION	
Access 1-2-3 IBM	375.00

PEACHTREE	
Telecommunications IBM	100.00

TOTAL SOFTWARE	
Total Infomaster C-64	35.00

TRANSEND	
Easy Come Easy Go Apple	85.00
Transend 1 Apple	53.50
Transend 2 Apple	79.50
Transend 3 Apple	145.00
Transend PC IBM	127.00

Interpreters	
HAYDEN	
Sargon II Apple 34.97 IBM 34.97 C-64 13.97	
Sargon III Apple 34.97 Apple 28.00	

INECCOM	
Deadline Apple 34.97 IBM 34.97	
Enchanter Apple 34.97 IBM 34.97 C-64 34.97	
Intidel Apple 34.97 IBM 34.97 C-64 34.97	
Planetfall Apple 34.97 IBM 34.97 C-64 34.97	
Seastalker Apple 28.00 C-64 28.00	
Suspended Apple 34.97 IBM 34.97	
Witness Apple 34.97 IBM 34.97 C-64 34.97	
Zork I Apple 28.00 IBM 28.00	
Zork II Apple 28.00 IBM 28.00	
Zork III Apple 28.00 IBM 28.00	

MECA	
Managing Your Money Apple 139.97 IBM 139.97	

MICROIM	
R Base IBM	325.00

MICROSOFT	
Basic Interpreter IBM	230.00
Multisp/Mustar-80 Apple	135.00
Z-80 Softcard (BASIC-80) Apple	255.00
Macintosh File Apple	129.00
Flight Simulator Apple, IBM, C-64	34.97
Macintosh Multiplan Apple	136.50
Multiplan Apple 136.50 IBM 136.50	
MS Sort IBM	136.50
Premium Softcard Ite Apple	276.50
Microsoft MAC Word Apple	136.50
Multi-Tool Word IBM	262.50
Multi-Word/Mouse IBM	332.50

SCARBOROUGH	
MasterType	
Apple 28.00 IBM 28.00 C-64 28.00	
MasterType Ite Apple	28.00
MasterType Rom C-64	28.00

SENSIBLE	
Sensible Speller Pro DOS Apple	87.50

SIMON & SCHUSTER	
Typing Tutor III	
Apple 34.97 IBM 34.97 C-64 34.97	
Wordvision IBM	55.97

STONEWARE PRODUCTS	
Advanced D.B. Master IBM	327.00
D.B. Master Apple	89.00
D.B. Master/Hard Disk Apple	247.00
D.B. Master 4 Plus Apple	197.00
Mac D.B. Master Apple	267.00

TIMEWORKS	
Data Manager-II IBM 85.00 C-64 34.97	

Home Finance	
BATTERIES INCLUDED	
Checkbook C-64	20.97
Home Inventory C-64	20.97
Paper Clip C-64	62.97
Paper Clip w/Spell Pack C-64	83.97

BRODERBUND	
Bank Street Writer	
Apple 48.97 IBM 55.97 C-64 48.97	

CONTINENTAL	
Home Accountant	
Apple 52.47 IBM 99.50 C-64 52.47	
Home Cataloger C-64	34.97

STONEWARE	
D.B. Master Business Writer Apple	104.30

TIMEWORKS	
Accounts Payable C-64	39.97
Accounts Receivable C-64	39.97

SKORA SUPPLY

135 S. 6TH AVENUE • TUCSON, ARIZONA 85701
Corporate and School Purchase Orders Accepted

MAIL ORDER SALES ONLY

Mon.-Fri. 8-5: Sat. 9-1

Closed Saturday — June, July & August

INQUIRIES & ARIZONA RESIDENTS (602) 884-9777 OR (602) 622-4007—622-1156
ORDERS ONLY TOLL FREE 1-800-528-4850

For fast delivery send cashier's check, certified check or money order. Personal and company checks allow 4 weeks to clear. Shipping is FOB our Tucson warehouse. Shipping, handling and insurance add \$3.00 minimum. C.O.D. orders add \$2.50 C.O.D. fee. All C.O.D. orders require a 25% deposit and the balance C.O.D. cash only. Mastercard and Visa add 3% (include card # and expiration date). Arizona residents add 7% sales tax. We ship same day for most orders. UPS ground. PRICES SUBJECT TO CHANGE WITHOUT NOTICE. All merchandise is warranted by each manufacturer. NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS.



The pick of quality The name says it all.

5 1/4" SS/DD 10 pack 14.50

5 1/4" DS/DD 10 pack 17.50

5 1/4" DS/DD 10 pack, 96TPI ... 43.50

3 1/2" SS/DD 10 pack 32.50

HOME FINANCE

TIMEWORKS—continued	
Cash Flow Management C-64	39.97
General Ledger C-64	39.97
Inventory Control C-64	39.97
Payroll C-64	39.97
Sales Analysis Management C-64	39.97
Word Writer C-64	34.97

Property Management

ADVANCED LOGIC SYSTEMS	
List Handler Apple	55.97
Spell Handler Apple	41.97
The Handlers Apple	118.97

BRODERBUND	
Bankstreet Speller Apple	48.97
Print Shop Apple	34.97
Print Shop Refill Apple	10.47

CONTINENTAL SOFTWARE	
Property Management Apple 346.50 IBM 346.50	

DESIGNWARE	
Apple 20.97 IBM 20.97 C-64 20.97	

Crypto Cube	
Apple 28.00 IBM 28.00 C-64 28.00	

Grammar Examiner	
Apple 31.47 IBM 31.47 C-64 31.47	

Math Maze	
Apple 28.00 IBM 28.00 C-64 28.00	

Mission: Algebra	
Apple 31.47 IBM 31.47 C-64 31.47	

Music Teacher: Notable Phantom	
Apple 34.97 IBM 34.97 C-64 34.97	

Spellagraph	
Apple 28.00 IBM 28.00 C-64 28.00	

Spellakazam	
Apple 20.97 IBM 20.97 C-64 20.97	

Spellicopter	
Apple 28.00 IBM 28.00 C-64 28.00	

States and Traits	
Apple 31.47 IBM 31.47 C-64 31.47	

Trap-a-zoid	
Apple 28.00 IBM 28.00 C-64 28.00	

FUNK	
Sideways Apple 41.97 IBM 41.97	

SIERRA ON-LINE	
HomeWord Speller Apple	34.97

SOFTWARE PUBLISHING	
School and Record Keeper Ite and Ite	100.00

STONEWARE PRODUCTS	
D.B. Master Statistics Pack Apple	89.00
D.B. Master Utility Pack #1 Apple	89.00
D.B. Master Utility Pack #2 Apple	89.00

TIMEWORKS	
Evelyn Wood Dynamic Reader	
Apple 62.97 IBM 62.97	

VISICORP	
Visiutor Advanced Version Ite Apple	69.97
Visiutor Calc Ite Apple 55.97 IBM 55.97	
Visiutor Word IBM	55.97

Computers	
OTRONA	
SANYO	
SHARP	
NEC	
OSBORNE 1-SS/DD	
TELEVIDEO	
ZENITH	
ITT	
ALTOS	
COLUMBIA	

Monitors	
AMDEK	
TAXAN	
ZENITH	
NECHE MONITORS	
SAKATA	
BMC	
GORILLA	
SAMSUNG	
PANASONIC	
QUADRAM	
PRINCETON	

Terminal	
WYSE	
QUME	
TELEVIDEO	
ADDS	

Printers-Plotters

ABATI	CALL
ANADIX	CALL
BROTHERS	CALL
CITIZENS	CALL
C.I.T.O.H.	CALL
MANESMANN TALLY	CALL
PANASONIC	CALL
QUME	CALL
SILVER REED	CALL
STAR MICRONICS	CALL
OKIDATA	CALL
TOSHIBA	CALL
NEC	CALL
CORONA LASER	CALL
ITHACA	CALL
ROLAND PLOTTERS	CALL
SHARP PLOTTERS	CALL
BLUE CHIP	CALL
DIABLO	CALL
EPSON	CALL
JUKI	CALL
QUADRAM	CALL
BMC	CALL
RITEMAN	CALL
SWEET-P PLOTTER	CALL
AMDEK	CALL

Disk & Hard Drives

IOmega BERNOLLI	CALL
TALLGRASS	CALL
RANA	CALL
CORVUS	CALL
ALLOY COMPUTER PR	CALL
TANDON	CALL
MAYNARD	CALL
SANYO	CALL
TEAC	CALL
GREAT LAKES	CALL
IDE	CALL
TEAM MATE	CALL
TECMAR	CALL
XCOMP	CALL

Modems

ANCHOR AUTOMATION	CALL
NOVATION	CALL
HAYES	CALL
PROMETHEUS	CALL
HES	CALL
ROBINSON	CALL
RIXON	CALL
TRANSEND	CALL
VEN-TEL	CALL
INTERMATRIX, MAC PHONE	CALL
UNIVERSAL DATA	CALL

Plug-In Boards

AST RESEARCH	CALL
CARDCO	CALL
HERCULES	CALL
ORANGE MICRO	CALL
MICROTEK	CALL
PERSONAL COMP. PR.	CALL
SOUND IDEAS	CALL
STB	CALL
ORCHID	CALL
QUADRAM	CALL
PERSYST	CALL
STANDARD DATA	CALL
TECMAR	CALL
MEMORY CHIPS	CALL
ADVANCED LOGIC	CALL
ATARI	CALL
COMPUTER STATIONS	CALL
DIGITAL RESEARCH	CALL
MPC PERIPHERALS	CALL
MICROMAX	CALL
MICROSOFT	CALL
PARADISE SYSTEMS	CALL
PRACTICAL PERIPH	CALL
TAXAN	CALL
TITAN	CALL
VIDEIX	CALL
DIGIGRAPHIC	CALL

Sound Covers

Furniture

Printer Stands

Monitor Stand Swivel

Leading Edge Products

Software

SHOEBOX	CALL
PRINT SHOP (APPLE)	CALL
XENOCOPY PLUS	CALL
COPY II PLUS	CALL
ORCA/M	CALL
WORDPERFECT	CALL
CHANG	CALL
HAYES	CALL
MICROPRO	CALL
PEACHTREE	CALL
SORCIM/IUS	CALL
HOWARDSON	CALL
BPI	CALL
CDEX	CALL
MICROSOFT	CALL
MICROIM	CALL
MOUSESYSTEMS	CALL
DIGITAL RESEARCH	CALL
STONEWARE	CALL
HESWARE	CALL
PEACHTREE	CALL
INFOCOM	CALL
FOX & GELLER	CALL

Surge Protectors

Brooks 4 Plug w/Cord 5 Year Warr	53.97
Brooks 6 Plug w/Cord 5 Year Warr	59.97
Isobar 2 Plug w/Cord	35.97
Isobar 4 Plug w/Cord	53.97
Powerguard 6 Plug w/Cord	17.97
Multiple Outlet 6 Plug w/Cord	11.97
Powermate Stopper 6 Plug w/Cord	35.97
Cord Reel 6 Plug 25 Ft. Extension	20.97

Shredex Shredders

#2001—Watergate Crosscut Desktop	
Slightly larger than a telephone with removable tray	269.00
#1000—Watergate Top Secret Crosscut	
Up to 5 sheets may be fed simultaneously. Includes wastebasket	469.00

#350—Desktop Model

Comes complete with forms feed funnel. Excellent for computer forms	525.00
#2100—Watergate Crosscut	
High capacity computer forms desktop shredder. Handles up to 8 sheets of paper in a single pass	979.00

Plug-In Boards

C-64 BATTERIES INCLUDED	
BusCard II	139.97
CARDCO (Commodore)	
CardPrint/B printer interface	45.00
CARDCO	
Card Board/5	55.97
Cardette 1	27.97
Card Key (Numeric Key Pad)	34.97
Card Print/G (Graphics)	69.97
Cardwriter (Light Pen)	27.97
HERCULES	
Graphics Card	335.00
Color Card	165.00
ORANGE MICRO	
Grappier * graphics interface for Apple IIe	85.00
Serial	79.00
Grappier - (IDS) for IDS printers	99.00
Buffered Grappier * for Apple. with 16K buffers and sockets to 64K	145.00
Orange Interface. Apple parallel card	60.00
Bufferboard	99.00
Bufferboard A	99.00
Bufferboard E	99.00
Grappier CD	89.00
16K Ram	25.00
MICROTEK	
Apple parallel graphics card	65.00
Apple parallel graphics interface with 16K buffer	145.00
RV-611C Apple parallel card w/cable	149.00
BAM-16 Apple 16K Ram	69.00
0-Disk 128K disk emulation	249.00

COMPUTER SHOPPERTM Mart

Showcase page is a new service to advertisers whereby high quality products can be displayed in the most economical fashion and at the highest visibility. Please contact these and other advertisers telling

them where in Computer Shopper you saw their advertising. Advertising inquiries about this showcase page addition, which will appear monthly, should call: 305-269-3211.

BULK 5 1/4" DISKS

Incl. Tyvek Sleeve & Write Protect Tabs.

DS/DD .80¢

SS/DD .75¢

Free Shipping over: \$30.00

Ironhorse

magnetics

609-

728-5889

We Accept M.C., VISA, M.O., C.O.D., C.I.A., P.O.'s & P.C.

LEARN ROBOTIC CONTROLS!
— Professionals — Technical School Students — Electronic Hobbyist —
Learn precision STEPPER MOTOR controls with our self paced course. Learn how to position robotic devices under complete computer control. Don't let a lack of STEPPER MOTOR knowledge limit your future designs. For the price of a software game alone you can OWN all of this...

A highly precise STEPPER MOTOR with an output of 960 steps/revolution. Fully assembled driver card that plugs directly into your computer. A complete, self paced, tutorial and instruction manual.

Fully commented software to control your Stepper Motor. To order send \$54.95 + \$3.50 shipping (Fla. residents add 5% sales tax) to:

MICRO INTERFACING CO.
PO Box 169, Valrico, FL 33594
(813) 689-3916

Still not convinced? Call or write to receive detailed information brochure. APPLE II version and COMMODORE 64 version now available. \$54.95. Call for info on others.

IBM PC/XT COMPATIBLE

★ ONLY \$999⁰⁰ ★

- Run All Popular IBM XT Softwares
- 640K on Motherboard
- 8088 Microprocessor
- 8 I/O Slots
- Floppy Controller
- Parallel Port
- Serial Port (2nd Serial Optional)
- Game Port
- Clock/Calendar
- 135W Power Supply
- Color Graphic Card
- High Resolution Composite Monitor
- One Teac 55B Drive (2nd \$95⁰⁰)

MicroPEACH COMPUTERS

12583 Carson St.
Hawaiian Gardens, CA 90716
(213) 865-0049

★ Dealer & Sales Rep. Wanted ★
IBM is a registered trademark of IBM Corp.

THE WAREHOUSE

DISKS:

SS/DD Datatech \$9.95 box/\$95 case

SS/DD Opus \$8.49 box/\$80 case

MOST CABLES:

Printer \$12

Modem \$11

(add \$4.00 for hood)

WRITE FOR PRICE LIST:

THE WAREHOUSE

2213 Hazelhurst Ct.

Kettering, Ohio 45440

Phone: (513) 299-6195

Between 8AM — 11AM

Add \$2 S&H — Ohio residents add 6% Ohio sales tax.

COMPUTER RESET

BUY * SELL * TRADE

a used computer shop

"Computer Dial & Shop"

a computer bulletin board

for listing computers,

and related items

to buy, sell or trade

BBS (214) 272-9651 Dallas

300 baud, 8 bits

1 stop bit, no parity

Info (214) 276-8072

P.O. Box 461782

Garland, TX 75046

Commodore Repairs

C-64 \$44.99

Plus 4 \$54.99

SX-64 \$64.99

VIC-20 \$34.99

1541 Align \$29.99

1541 Repair \$49.99

(not inc. head or stepper motor)

1701/1702 \$69.99

* Parts & Labor Inc. * 30 Day Warranty

* Fast Turn Around * Terms C.O.D.

Commodore Qualified

Service Center

BLUE CHIP COMPUTER

REPAIR, INC.

1290 Black Horse Pike

Turnersville, NJ 08012

609-728-9546

Custom IBM Compatibles Built To Your Specifications

Standard features:

- 8088-2 processor
- Runs MS/DOS, PC/DOS, CPM/86, Concurrent DOS
- 512K RAM, expandable to 1 mg on motherboard
- 8 and 4.77 mhz operation (switch selectable)
- Color graphics card
- Real time clock
- 2 serial ports, 1 parallel port
- 6 expansion slots on board
- hardware reset button
- 135 watt power supply
- IBM style case and keyboard
- Fully assembled. 180 day warranty
- W/2 DS/DD floppy drives \$1625
- W/10 mg 1/2 ht. hard disk & 1 floppy \$2225

20 mg and 33 mg hard disks available

CALL 303-635-8810

PCR, 2017 E. Bijou, Colorado Springs, CO 80909



Your Ad
Displayed
Here

For Only

\$100.00

CALL: 305-269-3211

FOR DETAILS

DECODE — IT

A MS-DOS DISASSEMBLER
Converts programs from binary to assembly language source code.

DECODE-IT FEATURES:

* Disassembles EXE, COM, OBJ, & LIB files.

* Output to screen or file.

* Runs on IBM PC or compatibles.

* Runs under MS-DOS V2.00 or higher

Supplied on floppy disk.

PRICE — \$49.95

Add \$2 for shipping and handling

ORDER FROM:

SKILCRAFT DATA SYSTEMS

P.O. Box 47471

Atlanta, GA 30362

PHONE: 404-934-6883

TERMS: Check or Money Order. Check clearance required. Georgia residents add 4% sales tax.

NationServ

Online Information
Network

ONLINE BBS LISTINGS

JOB SERVICE-NA LISTS

MESSAGE CENTER-INFO

PLAY GAMES ONLINE

SHOPPING MALL - UGS

CLASSIFIEDS-DNLOADS

Data: 618-847-2291

POB 391

Fairfield, IL 62837

PRICE BREAKTHROUGH

For IBM PC/XT or Compatibles

• Multifunction card \$125

0-384K RAM, serial, parallel, game port.

RT clock w/rechargeable battery backup,

spooler & RAM disk software

• PC/XT compatible motherboard \$199

8 I/O slots, 256K & Bios

• Color Graphic Card \$95

• Monochrome & printer port \$95

• Disk controller/cable \$55

• Printer card \$29

• 2 Drives, 256K, 5150 keyboard, col-

or or monochrome system \$995

• Call for latest prices

• Free shipping on prepaid cash order

over \$100 (except system)

• Easy board & other products available

NRPC 713-484-9575

104G S. Friendswood

Friendswood, Texas 77546

IBM PC/XT is a trademark of IBM Corp.

DISKETTES Inventory Sale

(Ultra Magnetics Lifetime Warranty)

Boxes of 10

40 Tracks SS SD \$11.50

SS DD \$13.50

DS DD \$15.50

80 Tracks SS DD \$20.50

DS DD \$24.50

Shipping \$2.00 First Box

\$1.00 Each Additional

Maximum \$6.00

Add 10% less than 3 boxes

Visa/MasterCard Accepted

Personal checks take 2 weeks to clear

S.T. ENTERPRISES

2430 Fairway Dr. St. Louis, MO 63131

1-314-821-1954

"AMBIZ-PAK"TM



OVER 1000 SOLD!

* ORDER VERIFY/GENERATE (400 PRODUCTS IN MEMORY)
* DISTRIBUTOR BONUS CALCULATE/GENERATE * DISTRIBUTOR
FAMILY TREE * MAILING LIST * 12-COLUMN LEDGER
* MONTHLY GROSS PROFIT * WORD PROCESSOR
* TELEPHONE PROGRAMS * OTHERS

IBM PC/XT/AT/Compatibles

TANDY 1000/1200/2000

TRS-80 MODELS III/4/4P (III Mode)

SANYO MBC 550/555

CP/M MBASIC (Specify computer & format)

ANY VERSION \$100.00

(Disk & detailed documentation)

INFO-PAK \$2 (credit with order)

BLECHMAN ENTERPRISES

7217 BERNADINE AVE. #1 CAMOGA PARK, CA 91307

(818) 348-7024

POSTPAID USA/CANADA FOREIGN ADD \$2 CALIF. ADD SALES TAX

* Amway has not reviewed or endorsed these programs.

ALSPA COMPUTERS ARE BACK

ACI/1 8" SSDD 596k bytes \$974.95

ACI/2 8" SSDD 1.2m bytes \$1194.95

ACI/2 8" DSDD 2.4m bytes \$1495.95

Loads 1k byte sectors, 8255A,

1 parallel, 1 user, 3 serial ports,

Onboard clock, CPM 2.2 Z80A, 64K

Size: 8.6"W, 5.75"H, 17.75"D

We sell & repair ALSPA COMPUTERS

CPU board \$45.00 + parts

POWER board \$25.00 + parts

TERMS: Check or money orders (checks

allow two weeks clearance) UPS COD add

\$2.00. All items are + S&H, S. Dakota

residents add 4% sales tax. Prices may

change without notice. Dealer inquiries

welcome.

FERGUSON ENTERPRISES

Authorized Manufacturer of ALSPA Computers

RR 1, Box 30

Iroquois, South Dakota 57353

(605) 546-2366

CPM tm Digital Research

Z80 tm Zilog

?

THE INNERMOST SECRETS OF TI 99/4A

DISCOVER THE INNERMOST SECRETS OF ONE OF THE MOST POPULAR PC's EVER MADE

\$5.95

+ Shipping

COMPUTER SHOPPER

P.O. BOX F

TITUSVILLE, FL 32781

at Special
Holiday Rates.
See Center.

TRS80 MODEL II, 3-Bay Expansion with second drive. Modem, Scripts, Profile, General Ledger, much more. Like new. \$1500. 1-813-3355 anytime. 10-72

TRS80 MODEL 3 with 24x80 video and 64K CP/M upgrade also runs TRSDOS, two 190K disk drives \$869. 818-716-5220. 10-70

TRS-Model III 64K, 2 disk drives, monitor port for printer. Ed Mitchell, 910 W. South St., Plano, IL. 312-552-8001 \$700. 10-70

TWO MODEL II's each with three-disk expansion drives, just removed from service. \$1,000 each at WBCO, 403 E. Rensselaer St., Bucyrus, OH 44820. 419-468-2326. 10-70

Tandy 1000 Multifunction cards and hard drives. Call for information and literature. Hard drive specialist. 16208 Hickory Knoll, Houston, Texas 77059. 1-800-231-6671, 1-713-480-6000. Dealer inquires invited. 11-73

(102) TRS-80 COMPUTERS WANTED

POCKET COMPUTERS and peripherals in good condition. Send details and price. Tester, 98-099 Vao PI 2307, Alea, HI 96701. 10-70

WANTED: DOSPLUS, MSCRIPT, and NEWDOS+ for TRS-80 MI. JBC's TC-8 cassette system. C.T. Huth, 130 Hunter St., Tiffin, OH 44883. 10-73

WANTED: Damaged TRS-80 Model III's, send details to: Old Model III Shop, POB 613, Pocono Pines, PA. 18350-0613. 11-75

WANTED: Model 3 or Model 4 disk controller and RS-232 boards (working or not), Model 3 or Model 4 cases or LNW cases. R. A. Putliner, 14344 Starbuck Street, Whittier, CA 90605. (213)698-3361

WANTED: TRS-80 MI. power supply and LNW-80 expansion interface enclosure only. C.T. Huth, 130 Hunter St., Tiffin, OH 44883. 8-71

WANTED: TRS-80, M1L2 Late Model keyboard only. Ernest Duval, 203 Caroline St., Saratoga Springs, NY 12866. 11-74

(103) TRS-80 SOFTWARE, PERIPHERAL

100 BUSINESS LETTERS on disk. These boilerplate letters, compatible with most word processors, will save you hours of composition and typing. Please specify TRS-80 DOS or CP/M format. Send \$7 to Fax Plus Computing, POB 206, Derry, PA 15627. 9-70

\$1100 PROFIT PER MONTH FROM YOUR TRS-80 COMMODORE OR APPLE. This program will allow you to enjoy a handsome full or part-time income working in your own home and setting your own hours. This unique program has been tested and used for over seven years and its service has had phenomenal acceptance. We provide all the knowhow, the consultation service, and all the materials needed to make this unusual business opportunity a success from the first day. If you like the idea of operating a highly profitable business out of your own home, if you like working with a computer and if you like making money, then this could be the opportunity you have been searching for. All you need is your TRS-80 model I, III IV, or 1000, your Apple or Commodore computer with or without disk drives, a minimum of 16K memory, a reliable printer, and the desire to turn your micro into a highly profitable home business enterprise. For complete details, send \$10.00 - (VISA, MASTER CARD, and AMERICAN EXPRESS honored). Viking Inc., 910 Soo Blvd., Rice Lake, WI 54868. Ask for "Opportunity 85."

5 MEG hard Disk (26-1130) in case, \$400. 408-248-0134.

900+ PUBLIC DOMAIN Disks/peripherals for IBM-PC, Apple, CP/M, Commodore, Compatibles. Catalog SASE or \$3.00 detail directory disk. Specify computer type. PanWorld International, 422 Halsey Road, North Brunswick, NJ 08902. 10-70

CLONE - The ultimate disk copy program. Produce unlimited backup copies of virtually any diskette regardless of protection scheme. Model 3 or 4. \$30 on diskette. 318-396-0822. Micro-Systems, 221 Chantilly Dr., West Monroe, LA 71291.

COLOR COMPUTER CAN MONITOR YOUR HOME. Free details. Internet 8, PFA, 651 N. Houghton, Tucson, AZ 85748.

COLOR COMPUTER? Only 46 cents each for quality programs! Write or call for

free catalog. Chopper Software, Box 256-C, Holland, MI 49423, 616-396-7577 4-72

Countries, States and Capitals for TRS-80 Models I, III, 4/4P (Mod. III mode) and Network 2 and 3 Controller Systems, 32-48K. A fully menu-driven, crash-proof, program designed for student use in schools and homes. Tests for over 230 Countries, States and Capitals, conveniently, grouped into eight geographic regions. Students get 10 randomly selected questions and 5 attempts each at identifying a Capital given the Country or vice versa. Computer assists with clues after each incorrect attempt. Three levels of difficulty. Automatic scoring. Print option. Three user modes for diskette for dual disk systems only - \$22.50. Specify model. Immediate shipment. DeZoyza Enterprises, P.O. Box 170, Keyport, NJ 07735.

Do you have access to Orchestra-90 software but don't want to pay the \$80 Radio Shack charges for the hardware? We sell 100% compatible Orchestra-90 stereo music synthesizer boards for \$35 that can also be used as D to A converters for motors, VCOs, etc. We carry over 500 music files sold separately. Specify Model I/III/4 when ordering. Send SASE for more info. CPU International, 11604 Starlight Ave., Whittier, CA 90604.

FREE PROGRAMS! TRS80-coco/TRS80-MC10/TRS80-III/TRS80-4/TRS80-PC3/T-199 4A/ all Commodores, Timexes. Send Stamps! EZRAEZRA, Box 5222-PRCT, San Diego, CA 92105.

FREE SOFTWARE (Public Domain) plus hints, tips, techniques, patches, and feature articles for TRS-80 Model I/III/4 users in each issue of NORTHERN BYTES newsletter, FREE sample copy for 56¢ postage (limit one per person). TAS, 704 North Pennsylvania, Lansing, Michigan 48906, 517-482-8270. 9-70



Handwriting Analyzer, Hangman, States And Capitals, Drawing Board, Free Information, CTL Co., 115 Bixby Drive, Milpitas, California 95035. 8-78

High Resolution for the TRS-80 Models I/III/4. Electronic builders: Don't pay Radio Shack for high resolution when you can build it yourself for less than \$30. Resolution for the Mod I is 384 x 192. Resolution for the Mod III/4 is 512 x 192. Complete schematics, theory of operation and construction details for \$15. Easy to build and install. Comes with software for point set/reset/test, line and circle routines and more. CPU International, 11604 Starlight Ave., Whittier, CA 90604.

Inventory records. Designed specifically for schools and churches. Uses Model 4 or Model 3. Please specify. Controls inventory, ages equipment, prints reports. Updates and changes simplified. Requires 32K, 2 disk drives, and printer. Includes instructions and practice program. \$17.50. Ralph von Kaenel, 2110 N.W. Couch, Camas, WA 98607. 11-72

Junkman Will Buy! I buy old scrap IC's, relays, circuit boards, diodes, any mixed junk, gold plated, transistors, connectors, dirty, broken, smashed or useless electronic junk - any amount! 1930 to 1985. Nothing refused! 10 years in business. Pack in boxes and ship UPS. Fast payment! JUNKMAN, 103 Saratoga St., Lawrence, Mass. 01842. 9-73

LETTER/REPORT WRITER PROGRAM for TRS-80 Models I, III, 4/4P (Mod. III mode) and NETWORK 3 SYSTEMS with 32-48K and TRSDOS 2.3/1.3 or LDOS 5.1. This powerful line-oriented word processor is suitable for Business, School, Personal and Student use. Ideal for writing single/multiple letters, circulars, reports, school notes, term/test papers, technical documentation, etc. Many versatile features controlled by six simple, on screen, editing codes and twelve menu options. Format text on screen to suit your needs. Text files (up to 250 lines each) automatically stored on disk. Recall any file for review, correction or printing. Insert, remove or enter additional text in any existing file. Save all or part of text under different file names. Append them together or to other files to create new files. Print all or part of text. Print mailing labels for letters. Set left margin and page length. Printer pauses to allow paper change. Direct keyboard to printer output feature turns keyboard into an electric typewriter. On screen identification of upper/lower case letters for unmodified Model I

keyboards. Fully menu-driven, easy to use (no complicated codes to remember) and crash-proof. Master it in 30 minutes. Available on Cassette (with instructions for easy transfer to diskette) for Models I/III/4 single/dual disk systems with recorder - \$22.50. Data Diskette for Models I/III/4/4P dual disk systems - \$27.50. Data Diskette for NETWORK 3 dual disk systems - \$49.50. Specify model. Immediate shipment. DeZoyza Enterprises, Dept-CS, P.O. Box 170, Keyport, NJ 07735

LETTER-WRITER DEMO SALE. Save 25% on the "A" rated word processor in Software Reports. We pay tax/USA shipping, MBG. Mod I, III/IV \$23.99 tape, \$37.99 disk. Orders: 1-800-622-4070; info/orders: 916-624-3709- Astro-Star Enterprises, 5905 Stone Hill Dr., #1, Rocklin, CA 95677. 5-73

MODEL 4 EDITOR/ASSEMBLER CONVERSION. Convert the Mod I or Mod III R/S Series 1 disk EDTASM to operate in the Model 4 mode. Get the benefits of faster speed, 80x24 screen, memdisk, spool and more. Plus add the following enhancements not available with the R/S EDTASM: Copy/Move a block of text from one buffer location to another. Alphabetic sort of symbol table; Cross reference listing of all symbols; Execute DOS commands from EDTASM such as DIR, REMOVE, COPY and many others. Disk and instruction manual, \$19.95 plus \$2 shipping and handling. Calif. residents add 6% sales tax. High Desert Engineering, 1630 So. Downs, Ridgecrest, CA 93555. 11-75

ORIGINAL GAME for the Color Computer WALLBALL - the game of the future. Protect your pet zorflabs from the highly toxic acid molecules that fly through the cage, using the color-coded cage doors the molecules into the environment beyond. All machine language, 16K or 32K cassette. Call 405-624-3148 for COD orders or information, or send \$7.95 plus \$2 S/H to Almost Unlimited Software, 1225 W. 3rd, Stillwater, OK 74074. 10-70

PROFILE III PLUS UTILITIES. SUPERFORMS \$59.00 allows you to Print up to 99 fields from each record on up to 99 line form. Allows you to print record number, system date, literals and a preset sequential counter. MOVE \$59.00 allows you to select records and build spin off files; or fill fields in existing data base with zeros, spaces or literals. KRUNCH \$29.00 shrinks size of data base by filling empty record holes with active records and then changes record count to active records. These utilities run on floppy or hard disk and come on diskette with user's guide. ROY SCHOELLER, P.O. Box 4031, Poplar Bluff, MO 63901. Phone 314-785-4725. 9-71

PROFILE PLUS DISPLAY REPORTS ON THE SCREEN (2/12/16). Sort and Select reports normally and send them to the screen as well as the printer \$20. PRO-SORT ENHANCEMENT: Adds three new functions to Prosort including DUPLICATE SEARCH and Search for strings within fields. Builds index of duplicates from up to a five field selection criteria, any size file \$40. Both \$50. All machine language. Diskette and instructions included. Michael Shemet, P.O. Box 46124, Seattle, WA 98146. Phone 206-242-9869. 9-70

PROGRAMS, PROGRAMS, PROGRAMS one catalog/month. \$6.00 1 year refund first order. Updates monthly. JARICK SOFT, P. O. Box 183, Fairmont, MN 56031. 11-73



Palmer & Palmer Presents... Games, Games, and More Games. 20 fun filled games for the Models II/12/16 and the new Tandy 6000. Also Game Pack II with many new and exciting games plus some of your old favorites. \$25 each or SAVE MONEY get BOTH for just \$40. Palmer & Palmer, 510 10th St. SE, Hampton, Iowa 50441. 515-456-3608. We pay postage on pre-paid U.S.A. orders! 11-71

Public Domain Software for the I, III, & 4. Send \$1.00 for catalog. RVB Enterprises, P.O. Box 16295, Houston, Texas 77222 10-70

QUICK REFERENCE Summaries for popular Model III DOS's: LDOS, DOSPLUS, MULTIDOS, NEWDOS/80, TRSDOS. Send \$10 to Fax Plus Computing, POB 206, Derry, PA 15627. 9-70

T.I. 99/4A, Computers \$89. Expansion w/drive \$339. Myarc cards, best prices. MBX Voice Recognition \$69. Printers, KXP-1090 \$219. All new. Brian McGregor,

1300 Suwanee, Daytona Beach, FL 32014. Ph. 904-258-0348. *10-71

TI 99/4A with extended basic all manuals and books included, \$75. Write to: Patrick King Jr., 130 Dutch Point Drive, Chapin, SC 29036 or call between 4 and 9 weekdays at (803)345-3453.

TRADE: OBO-Temple Apsal book & disk, attack force, scarfman. WANTED: Superscript, spelling/checker, vilsalc, multiplex Mod III/4 Must be disk, factory label & manual. (206)337-0864. R. J. Seibert, 1308 126th SE, Everett, WA 98204

TRS-80 Level II Basic, printer, two drives, \$1200. Biscayne Specialty Corp., Box 1166, Homestead, FL 33090. Send \$200 Money order, balance C.O.D.

TRS-80 Model III software. SASE for list. Peloraro, 5409 Girdley Way, Riverside, CA 92505. 11-72

TRS-80 Model I 48K 2 Disk Drives, Printer. Needs work. Best Offer. Earl Petrimouix, 3107 Candlestick Ln., Bay City, MI 48706.

TRSDOS 2 disks 48K RS232 and Internal direct connect modem, very clean, \$499. John 215-836-5035. 9417 Stenton, Phila., PA 19118

WORD PROCESSOR. BASIC Model 1, 3, 4, (3 mode) 16k, 32k, 48k, tape, disk. Full featured, with automatic wraparound, editing, formatting, global search/replace, form letter generation, set fonts, insert graphics. Includes 20-page manual. Specify your system. \$10 tape, \$12 disk, \$15 compiled (48k Mi disk only). D. Hinrichs, 2116 SE 377th, Washougal, Wa. 98671.

XENIX MEDICAL SYSTEM. Complete multiuser medical office system for Model 16/6000 (COBOL). Includes A/R, appointments, statements, insurance, accounts payable, payroll, reports, graphic analysis. Demonstration Disk \$50 (refundable). Total System \$600. Medsystems, 1932 Brookside Road, Kingsport, TN 37660. 615-246-4155. 10-71

(104) TEXAS INSTRUMENTS COMPUTERS FOR SALE



Huge Inventory TI99/4A Hardware, software, accessories and printers. Free Catalog. Competition Computer, 2629 W. National, Milwaukee, Wisconsin 53204, 414-672-4010. 800-662-9253 Nationwide, 800-242-7902 Wisconsin. 7-71

LIKE NEW: TI99/4A, original carton. Xbasic, speech, telecommunications, mini-memory, editor-assembler, flight-sim, budget-finance, typing and systems tutors. All cables, books, technical manuals, loads of software on cartridge and cassette, much more. Over \$1000 original cost, first \$400 + UPS takes it all. Bill Tober, box 57, Stormville, NY 12582; (914)223-5664.

One Texas Instrument Model 771 64K memory console and keyboard with Dual Disk, floppy drive #800, \$14,000.00 New, will take best offer over \$2,000. For information call 215-947-4540.

TI-99/4A Fully expanded 3 disk drives. DSDD. RS-232, Foundation Z80 card. Foundation 80 col. card, Morning Star CP/M 2.2 processor card. Every imaginable program, language. Too much too list here. Asking 50% of current retail: \$1360.00 call Peter at 504-242-2066 10-70

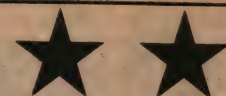
TI-Professional computer 512K/persyst board, 3 plane color graphics, color monitor, dual floppy disks, internal modem, software, communications card. all for \$1750.00. call 216-226-9557. 10-70

(104A) TEXAS INSTRUMENTS COMPUTERS WANTED

WANTED: Documentation, Schematics, prints for most computers, peripherals. Will pay. Mark, evenings 213-388-7839 or POB 17892, Los Angeles, CA 90017.

(104B) TEXAS INSTRUMENTS SOFTWARE, PERIPH.

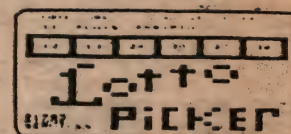
ADD 8K of USER RAM to EDITOR ASSEMBLER module! Has hundreds of uses, cheap and easy to do. \$10 for detailed instructions. Eric Benton, 45 Elm Street, Apt. #7, Waterville, Maine 04901. 11-74



CRYPTOPAD* completely new program that you will use on your TI-99/4A every day. Type in the daily cryptogram from an outside source and solve it on your screen. No more erasures or recurring letter searches. Increases enjoyment by allowing full attention to cryptogram patterns etc. Send \$12.95 to CRYPTOPAD*, PO Box 3222, Camarillo, CA 93011. Available on disk or tape. Only TI extended basic needed. *TM-10-70

FREE PROGRAMS! TI99-4A/all Commodores, TRS-80's, Timexes. Send postage stamps! EZRAEZRA, Box 5222-PTCT, San Diego, CA 92105.

LARGE TI99/4A Inventory. Call or write Braatz Computer Services, 719 East Byrd Street, Appleton, WI 54911, 1-414-731-3478. Have answering device. Leave message, thank you. 10-73



MILLION \$\$ JACKPOTS! LOTTO! PICK-4! Your TI99 or IBM-PC can unlock the winning combinations for you! Every U.S. & Canadian game included! Expandable! \$35. RIDGE, 170 Broadway, #201-CS, New York, NY 10038. 718-833-6335. Free Catalog. 6-71



PRO FOOTBALL ANALYST

Your TI99 or IBM-PC uncovers hidden overlays in the betting line for NFL games. Easy, requires only 5 minutes a week. Pays for itself. \$35. RIDGE, 170 Broadway, #201-CS, New York, NY 10038. 718-833-6335. Free Catalog SASE. 6-71

NUTS & BOLTS. A diskful of 100(!) utility subprograms for the TI-99/4A in XBasic MERGE format. Ready to merge into your programs. With documentation, just \$19.95 postpaid! Tigercub Software, 156 Collingswood, Columbus, OH 43213. 10-70

TI99/4A Arcade game software. Five X-Basic games on cassette only \$12.50. diskette \$17.50. Send stamp for catalog. Best Software, PO Box 22446, Baltimore, MD 21203. 11-72

TI99/4A Machine language program deloader copies program in computer memory back to disc in a format useable by the E/A module. Send \$10.00 to: Kings Marketing, P.O.Box 591, Station "J", Calgary, Alberta, Canada TZA 4X8. 11-71

TI-99/4A SOFTWARE, 138 programs only \$3 each! Not public domain, not translations, not pirated, not brief routines, these are absolutely original innovative programs utilizing full color and sound capabilities of the TI-99/4A. Games, education, music, programmer's utilities, etc., etc. Descriptive catalog \$1 refundable. TIGERCUB SOFTWARE, 156 Collingswood, Columbus, OH 43213. 9-70



TI-99/4A discount text and hi-res adventure software series. Free Catalog. The Adventure Store, TI software, Roscoe, IL 61073-0320. 9-70

TIPS FROM THE TIGERCUB, for TI-99/4A, full disk of 50 programs, routines, files from the well-known Tigercub Tips newsletters #1-#14. \$15 postpaid. Tigercub Software, 156 Collingswood, Columbus, OH 43213. 10-70

TIPS FROM TIGERCUB, full disk of 50 programs, files from the well-known Tigercub Tips Newsletters #1-#14, \$15 postpaid. Tips vol. 2, diskful of 64 programs, files from newsletters #15-#24, \$15, or both for \$27. Postpaid. Tigercub Software, 156 Collingswood, Columbus, OH 43213. 11-75

UNPROTECT YOUR Extended Basic programs. Send \$3 to Clint Wall, 4102 Tanglewood Drive, Bryan, Texas 77802. 1-71

WANTED: Peripherals, software, car- tridges, etc. for TI99/4A. Send a descrip-

tion of items along with your best offer, to Neal Texeira, 20295 Anita Ave., #6, Castro Valley, California 94546.

(105) ALTOS COMPUTERS FOR SALE

8000-6 4-user, 208K, 15 meg, Hard disk, 2-8" floppies. Oasis and MPM operating systems. Lots of software. Day/evening call Greg, 816-582-8511. 9-70



ALTOS 5 - 15D's

\$610
mpm-II, dual floppy
30 day guarantee
w/ 2 TV 910 terminals
\$875
BCE 202-944-3900



Altos 580 - 20's \$1549

Altos 580 - 20's with MPM. Demos in original cartons. 20 meg hard disk. 30 day guarantee. Call BCE 202-944-3900



Altos 8000 Series

8000 - 10's \$1245
8000 - 12's \$1645
8000 - 14's \$2245
MTU - 2's \$ 725
All used with 30 day guarantee. Call BCE 202-944-3900

(105A) ALTOS COMPUTERS WANTED

WANTED: ALTOS 586's, 986's, Altos tape drives, etc. Working or not. Gene 918-687-3161

(105B) ALTOS SOFTWARE, PERIPHERAL

(106) APPLE COMPUTERS FOR SALE



"REAL" Used computers. Ask about our "You Gotta Be Happy" guarantee! While they last! Apple II+ \$325. Call Shreve Systems, 318-865-6743, 4-8pm. 11-71

900+ PUBLIC DOMAIN Disks/peripherals for IBM-PC, Apple, CP/M, Commodore, Compatibles. Catalog SASE or \$3.00 detail directory disk. Specify computer type. PanWorld International, 422 Halsey Road, North Brunswick, NJ 08902.10-70

APPLE IIE two drives, Taxan monitor, two serial cards; one is 16K buffered. 80 column card. All practically brand new. Make reasonable offer. Jim 813-985-1085 before 7:30AM or after 6PM. 10-70

APPLE II Hardware sale/trade. send SASE for more info. I am looking for a mountain hardware music system. Walt Perko, 251 Arriba Dr. #7, Sunnyvale, CA 94086.

APPLE II PLUS- with language card, 80 column Smarterm card, 128K legend card and 21-key numeric keypad. No disk or monitor. \$525 firm. Excellent Condition. Ron (804)740-0918 (h)9am - 9pm EST, (804)264-7517 (w).

Apple II* Lookalike. 64K Monitor, two drives, parallel printer, interface, gemini printer, all documentation, users manual, some software. EC \$900. (615)842-6537, Maryanne McFalls, 921 Spurling Dr., Hixson, TN. 37343

Apple IIe, 128K, 2-drives, monitor, modem, CP/M, printer. \$1690; 345-6800. 11-73

Appli-Card CP/M Board Wordstar Mailmerge Spellstar StarIndex

Complete Package \$179!

Apple Owners, How much would you pay for Wordstar, Spellstar, Mailmerge, StarIndex, and an Appli-Card Z80 CP/M board? How does \$179 sound? Read on. You get Wordstar Professional, including Wordstar the industry's standard word processing program as well as all its companion programs: Spellstar, Mailmerge and StarIndex. You also get the best CP/M board on the market: the Appli-Card. Running at 6mhz (roughly 5 times faster than the Apple's processor), its the fastest board around. It has 64K RAM on board which can also be used as a RAM disk under Apple DOS. The card will also allow you to use 70 columns and both upper and lower cases; the shift key modification is included. It slips right into the Apple II+, of IIe and comes with CP/M version 2.2. And, its backed with a full year's guarantee. Limited quantity, call now! BCE 202-944-3900.

BASIS 108 (Apple II+ Compatible) 128K, dual disk drives, Applesoft and Basis monitors in switchable roms, CP/M 3.0 misc. CP/M and Applesoft software (Wordstar, dbase II, Perfect series, The Home Accountant, etc.) \$1095; Comrex 9" monitor \$60; two Super 5 disk drives with controller \$200. Carl Castore, 109 Linda Lane, West Lafayette, IN 47906. 317-463-7368. 11-71

COMPLETE APPLE IIC SYSTEM includes 2 disk drives, color monitor, 300/1200/2400 baud modem, joystick, several thousand programs w/documentation and over 300 diskettes, \$1800 or B/O. 414-426-5672, Darwin, 421 N. Westfield, Oshkosh, WI 54901.

CORVUS 8" floppy controller for Apple

computer get more storage for your Apple. Furnished with schematic. Price \$29.95. CEC 1745 Adrian Rd., Burlingame, CA 94010. 800-228-3411.

CORVUS 8" floppy controller for Apple computer get more storage for your Apple. Furnished with schematic. Price \$29.95. CEC 1745 Adrian Rd., Burlingame, CA 94010. 800-228-3411.

DSDD DISKS 49¢

SSDD DISKS 47¢

Dysan . Xidex . Etc. A large software manufacturer goofed! They made 1000's of copies of their programs then they found the bugs in the programs. Instead of re-using all of these disks, they have given some of them to us to liquidate. These are top quality Dysan, Nashua, Wabash, and Xidex disks. These disks have met far more exacting tests than almost all new disks, since each one has been individually written on and then tested for read write errors according to the exacting specifications of the manufacturer. They have been bulk erased (degaussed) and are totally blank and ready for formatting. We are selling them in lots of 100, 250, and 1000 complete with envelopes, hub rings, and labels. You can have 1000 DSDD disks for \$490, 250 for \$147, 100 for \$63, or 1000 SSDD disks for \$470, 250 for \$143, or 100 for \$61. Return or replacement for 30 days, if not 100% satisfied. Shipping and insurance add \$5 per 100 disks. BCE 202-944-3900.

Junkman Will Buy! I buy old scrap IC's, relays, circuit boards, diodes, any mixed junk, gold plated, transistors, connectors, dirty, broken, smashed or useless electronic junk - any amount! 1930 to 1985. Nothing refused! 10 years in business. Pack in boxes and ship UPS. Fast payment! JUNKMAN, 103 Saratoga St., Lawrence, Mass. 01842. 9-73

CORVUS 8" floppy controller for Apple computer get more storage for your Apple. Furnished with schematic. Price \$29.95. CEC 1745 Adrian Rd., Burlingame, CA 94010. 800-228-3411.

LIQUIDATION! APPLICARD CP/M BOARD W/WORDSTAR PROFESSIONAL \$179!

CP/M CARD includes 2.2 CP/M. Runs at 6mhz, 64k on board, use as a Ram disk under Apple DOS, 70 columns (no 80 column) card required and upper/lower case. Wordstar Professional includes mailmerge, Spellstar, Star Index, limited quantities, act now. List price \$1019, our price \$179! Call BCE 202-944-3900.

Apple II*, BMC Monitor, 2 drive, videx 80 column, 64k, 25+ disks software, all documentation, manuals, books, \$1150 or best offer. 10 Megabyte Cartridge drive for Apple II+ or IIe, \$1800 or best offer. SASE for complete details. Dennis Heaton, 1301 Lakeside Way #309, Atlanta, GA 30319

(107) APPLE COMPUTERS WANTED

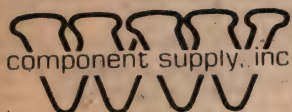
Paying \$5.00 per pound for scrap tantalum capacitors. Any amount, fast payment! Ship: Sciuto, 103 Saratoga St., Lawrence, Mass. 01842. 9-79



"REAL" Used computers. Ask about our "You Gotta Be Happy" guarantee! While they last! Apple II+ \$325. Call Shreve Systems, 318-865-6743, 4-8pm. 11-71

(108) APPLE SOFTWARE, PERIPHERAL

\$100,000 per year from your Apple, IBM, TRS-80, or Atari. Our program will allow you to enjoy a handsome full or part-time income working with your micro computer. You set your own hours and can work directly out of your own home or office. Twenty-five per cent of the 500,000 millionaires in the United States made their fortunes using this method! This is not a pie in the sky dream, it is just a good business plan - and it works!



POWER SUPPLIES:

ACDC OEM 5N17-1, 5V@17A, 10"x5"x5", 14lbs. \$45.00
Trygon LBS6-24-OV, 4.8-6.8V@24A, 6"x17"x8", 36 lbs. \$60.00
Lambda LXS-D-5-OV, 5V@27.5A 7 1/2"x7 1/2"x9 1/4", 22 lbs. \$60.00
Sorenson SSD9-50, 9V@50A switcher, 7 1/2"x5 1/2"x12 1/4", 13 lbs. \$175.00
Standard Power 200 B 12, 12V@5A unregulated 4 1/2"x8 1/4"x5 1/2", 12 lbs. \$20.00
ACDC 15N5-1, 15V@5A, 10"x4"x5", 6lbs. \$75.00
Standard Power 200 B 16, 16V@12.5A unregulated 4 1/2"x8 1/4"x5 1/2", 12 lbs. \$15.00
Sorenson SLC20-5, 20V@5A, 5 1/2"x3 1/2"x8 1/2", 4 lbs. \$40.00
Sorenson SSD24-8.5, 24V@8.5A 5 1/2"x3 1/2"x10", 5 lbs. \$90.00
Astec AA11261, 5V@6A 28V@1A, unregulated switcher, 7 1/2"x4 1/2"x2" \$50.00
130W power supply, IBM PC compatible \$140.00
HB5-3, 5V@3A Linear, 4"x5"x2" \$15.00
CP411, 5V@8A, -5V@3A, +12V@1.2A, -12V@1A, +24V@2.5A, 5A(surge) \$35.00
16 1/2"x5"x3" Linear, (Good for 8" Hard Disks, and 5 1/4" Floppies) \$35.00
CP417, 5V@4A, 12V@2.5A(Avg.) 7.5A(Surge) Linear, 8 1/2"x5"x3" (Good for 5 1/4" Hard Disks) \$50.00
ACDC, 551-111, 5V@8A, ±12V@1.7A Linear, 11"x5"x3" (Good for 5 1/4" Floppies, or Low Current Hard Disks) \$35.00
Osborne Power Supply +5V@2.5A, +12V@2.02A, -12V@.1A Switcher, 6 1/4"x4"x2" (Good for 5 1/4" Floppies) \$18.00

CASES WITH POWER SUPPLIES:

For one full ht., or two half ht. 5 1/4" floppies. \$96.00
For one full ht. or two low pwr. half ht. hard disks. \$200.00

1771 Junction Ave. • San Jose, CA 95112 • (408) 295-7171

Shipping charged on all orders. Minimum order: \$15.00. Please call on all orders as items are limited to quantities on hand. Prices subject to change without notice. C.O.D., Prepaid or Master Card or Visa orders only. NO OPEN ACCOUNTS / NO FOREIGN ORDERS, PLEASE!

DISK DRIVE BONANZA:

DISK DRIVES:

SURPLUS Tandon TM501-full ht., 5 megabyte formatted. One platter, two heads, access: 85 msec., 612 tracks, 306 cylinders, +12V@1.5 A typical, 5 max., 5V@.8A \$119.00
SURPLUS Tandon TM502-full ht., 10 megabyte formatted. Two platters, four heads, access: 85 msec., 1,224 tracks, 306 cylinders \$225.00
SURPLUS TM 503-full ht., 15 megabyte formatted. Three platters, six heads, access: 85 msec. 1,836 tracks, 306 cylinders \$340.00
SURPLUS TM 602S-full ht., 5 megabyte formatted. Two platter, 612 tracks, 1 cylinder \$95.00
SURPLUS Tandon TM 603SE-full ht., 11 megabyte formatted. Three platter, six head, access: 137 msec. 1,380 tracks, 230 cylinders \$225.00
NEW Tulin TL226-half ht. 20 megabyte \$600.00
NEW Tulin TL240-half ht., 32 megabyte \$950.00
NEW Microscience HH725-hlf. ht., 20 megabyte \$559.00
NEW Microscience HH612-hlf. ht., 10 megabyte \$429.00
NEW TEAC SD510, half ht., 10 megabyte, requires 130W power supply for P.C. \$416.00
NEW Shugart SA455/Panasonic JA55112N-5 1/4", half height, 48TPI, 40 track, 6msec. double sided \$ 99.00
NEW TEAC FD55BV-48 TPI, 40 track, 6msec., half height, double sided \$109.00
NEW TEAC FD55FV-5 1/4", half height, 96TPI, 80track, 3msec., double sided \$149.00
NEW TEAC FD55 GFV-AT-5 1/4", 1.2 megabyte floppy for IBM PC-AT* \$175.00
NEW TEAC FD35F-3 1/2", 80 track, 135 TPI, double sided \$180.00

DISK DRIVES: (continued)

NEW TEAC FD35E-3 1/2", 8 track, 135 TPI, single sided, 12V@8ma., 5V 180ma. \$168.00
SURPLUS Shugart SA450-5 1/4", full height, 48 TPI, 40 track, 2.5 msec. track to track, double sided \$ 75.00

HARD DISK CONTROLLER CARDS:

NEW DTC 5150 BX, for IBM PC- Without Data Cables \$210.00
With Data Cables \$220.00
NEW DTC 5250-will run two 5 1/4" floppies and two 5 1/4" hard disks. For example two TEAC FD55B, one Microscience HH725 20 megabyte fixed hard disk, and one Syquest SQ306R 5 megabyte removable hard disk. \$392.00
NEW DTC 5290-For IBM PC-AT, will run 5 1/4" floppies and hard disks \$364.00
NEW Western Digital WD1002-WX2-for IBM PC Without Data Cables \$196.00
With Data Cables \$206.00
NEW WD W1002-WA2-for IBM PC-AT Will run 5 1/4" floppies and hard disks \$336.00

* All drives with asterisk are compatible with the IBM PC™ as 360K or 380K drives. Half height drives may require mounting brackets or filler plates not supplied with the drive.

When ordering controller cards please indicate the model of drive you will be using, and the number of heads, cylinders and formatted capacity of the drive.

All drives carry a 90-day guarantee.

TELEVIDEO 806 Boards - for Startype Televideo Network or stand alone CP/M system.

Asis \$25.00
Working without LSI parts \$50.00
Working with all parts \$95.00
Users manual \$10.00 Service manual \$35.00

We provide all of the materials and know-how needed to make big money right away, and your total investment for the complete program can be limited to just \$80. For complete details send \$15.00 check or money-order to: **APPLIED MICRO RESEARCH COMPANY, P. O. Box 6151, Saginaw, MI 48608.**



512K MAC EXPANSION KIT. Includes memory chips, sockets, chip select, instructions, \$89. Installed with 120 day warranty, \$165. **CONCEPTRONICS, 2806 Buckingham Ct., Waukesha, WI 53186.** 10-71

5 MEGABYTE add-on hard disk subsystem for Apple or Franklin. Kit - \$350. For technically oriented persons. **Digital Search 803-877-9444.**

APPLE ADVENTURES. See **Compuquest** Advertisement in Section 192. 11-72

APPLE BUILDERS

Upper/lower case video character generators, \$20. Specify USA (revision 7 or later) or Asian clone version. UPS \$2 per order. IC sets, manuals, keyboards. Request full flyer. **Electrovalue, Box 376-CS, Morris Plains, NJ 07950.** 201-267-1117. 11-81

APPLE BUILDER KEYBOARDS

83 key HI-TEK keyboards, never used, 1981 manufacture. Full ASCII including upper/lower case, all control characters. **CAPS-LOCK** and **REPEAT** keys, numeric pad, simple mods. for right & left arrow, 5 extra function keys (great for **SCREEN WRITER**) parallel output, positive logic, strobe, buffer, self test mode, uses +5 volts at only 106ma. Custom case available, 90 day warranty unmodified. Keyboard \$35. Package of documentation including schematics, Apple hook-up, left & right arrow mod. Instructions and parts & 4 foot cable kit \$5. Spare custom CPU/ROM \$4. UPS included or add extra for 5 pounds mail or Blue Label. Call or send stamp for detailed spec. sheet. **Electrovalue Industrial Inc., Box 376-CS, Morris Plains, NJ 07950.** 201-267-1117. 8-78

APPLE BUILDERS

APPLESOFT ROMS are back in stock! \$60 per set of 6, original Apple parts. Upper/lower case video character generators, \$20. Specify USA or Asian clone version. UPS \$2 per order. IC sets, manuals, keyboards. Request full flyer. **Electrovalue, Box 376-CS, Morris Plains, NJ 07950.** (201)267-1117. 8-78



APPLE CP/M PUBLIC DOMAIN. Modem terminal program assembled for your Apple. Lets you download CP/M programs. \$7 postpaid. Specify equipment. Free list of CP/M Public Domain. Diskette conversion to and from Apple, IBM and CP/M send for list. **Softhaus, Box 4150-CO, Vero Beach, FL 32964-4150.** 305-231-0912. 10-71



APPLE II SERIES discount entertainment software. Newest Titles: includes Ultima and Wizardry series. Free Catalog. **The Adventure Store, Apple Software, Roscoe, IL 61073/0320.** 9-70

APPLE IIc Z80 card plugs inside and runs Apple DOS or CP/M software! \$189 with installation manual. **818-716-5220.** 10-70

APPLE MANUALS FOR CLONE BUILDERS

These are the original, hard to find manuals you need: Apple II Reference Manual (A2L0001A), includes schematics \$22. Apple DOS 3.3 User Manual (A2L2002) \$16. Apple DOS 3.3 Programmer's Manual (A2L2012) \$12. Applesoft BASIC Programming Reference Manual (A2L0006) \$15. All 4

ATTENTION Apple, Atari and Mac owners Save 30% or more on software. This ad is much too small to tell you all about our super software prices. Call or write for a FREE catalog (specify your computer type). **Delson's Catalog Offer, Box 1346, Canoga Park, CA 91304, 818-887-5260**

for \$55. Add UPS, \$2-1st, \$1 each additional. Request 8 page flyer. **Electrovalue, Box 376-CM, Morris Plains, NJ 07950.** 201-267-1117, M-F, 10-5. 7-77



APPLE SOFTWARE! The very best original public domain software for Apple and Apple type computers. **LARGEST SELECTION**, over 7000, programs on more than 200 diskettes **SEVEN** categories to choose from: **UTILITY, PERSONAL, BUSINESS, EDUCATIONAL, RECREATIONAL, PROFESSIONAL, MISCELLANEOUS** ALL **DISKETTES 3.3** 16-sector with auto boot load integer and menu. Only 2.95 per diskette. **SPECIAL (7) DEMO SET ONLY 19.95.** SEND \$3.95 for super deluxe demo diskette with catalog filler and files, plus another side filled with samoles of programs available. **COMPUTER SOFTWARE INTERNATIONAL, Route #2 Box 478, Utica, KY 42376.**

ATTENTION APPLE Computer Owners. Apple Work's 5 disks set with tutorial \$30; Chop Lifter, \$10; Apple Post, \$10; Home Accounting, \$12; Master type, \$12; Bank Street Writer, \$12; How to Program in Apple Soft \$15, 2 disk. Write for our catalog. Send to **Star Trek Software, P.O. Box 1137, NYC, NY 10035.** Make check payable to William Moseley.

Amazing Software at low, low, low prices. Appleworks \$100; PFS: Write \$50; Applewriter \$50. Plus psychology, all three versions of Eliza, many, many games, utilities, algebra, and much, much more for only \$20 each. Order my \$1000 **Grab Bag**, 50 programs in all, and includes all of the above programs, for only \$150. Add \$10 for handling and insurance. Allow two weeks for checks to clear. Your satisfaction is guaranteed or your money back. **Orion Enterprises, One Sapphire Drive, Key West, Florida 33040.** 9-70

Apple Public Domain software \$3.00 a disk or you furnish disk \$1.00 each side plus \$2.50 shipping. Blank disks available. Send \$2.00 for catalog and get a free disk of software with your software or disk order. Mac Public Domain software \$5.00 a disk plus \$2.50 shipping. Blank disks available. Send \$3.50 for catalog and get a free disk of software with your software or disk order. Send check (CCR) or m.o. to **B & L CONSULTANTS & SALES box 461 Wabash, IN 46992, or for furnished disks Robert Lunn, 267 Gladstone Dr. Wabash, IN 46992.** 11-71

Apple Software - All the latest at very low prices. Plus blank disks and other Apple items. Free catalog. **P.D. Software, P.O. Box 13124-A, Houston, TX 77219** 7-71

Appli-Card CP/M Board Wordstar Mailmerge Spellstar StarIndex

Complete Package

\$179!

Apple Owners, How much would you pay for Wordstar, Spellstar, Mailmerge, StarIndex, and an Appli-Card Z80 CP/M board? How does \$179 sound? Read on. You get Wordstar Professional, including Wordstar the industry's standard word processing program as well as all its companion programs: Spellstar, Mailmerge and StarIndex. You also get the best CP/M board on the market: the Appli-Card. Running at 6mhz (roughly 5 times faster than the Apple's processor), it's the fastest board around. It has 64K RAM on board which can also be used as a RAM disk under Apple DOS. The card will also allow you to use 70 columns and both upper and lower cases; the shift key modification is included. It slips right into the Apple II, II+, or IIc and comes with CP/M version 2.2. And, its backed with a full year's guarantee. Limited quantity, call now! **BCE 202-944-3900.**

CLEAR over \$50 per HOUR doing Macintosh memory upgrades. Free instructions tell how. **ALF, 648 W. Club Blvd., Durham, NC 27701.** 10-72

Complete Xenix 3.0 system for Apple Lisa/MacXL including: Operating system & Utilities, Software development system, and Text processing system. Original documentation and disks \$1,450 - asking \$500 flat. Call Al

Schumer, 617-451-2006 days or 617-246-3779 evenings and weekends. 9-70



ComputerEyes

Write to find out about the free (public domain) video image ART GALLERIES being set up using ComputerEyes for APPLE computers. - Make custom T-Shirts, scarfs, etc.

- Save Pictures to Disk - Capture images using a VCR and/or Video camera - Great for Computer Art, Computer portraits, Security, School fundraisers, etc. etc. - Many PRACTICAL Applications If you want your APPLE to "see", then get ComputerEyes. Order Visa/Master Charge: 1-(800)-523-2445, x48 in PA 800-346-7411, x48, Or Send Check/Money Order and all Inquiries to: **HAL, PO Box 293, Scotch Plains, NJ 07076**

Apple II, II+, IIc Compatible ComputerEyes \$109.00
Panasonic/Ikegami Commercial Grade B/W vide camera \$139.00
The programs below are all specifically designed to interface ComputerEyes digitized graphics to:

Print Shop 11.00
Double High Res 11.00
Newsroom 11.00
Underware Ribbons let you make iron-on transfers.
Black (Epson 80, ImageWriter, Oki/Star Gemini) 12.00
Red, Blue, Green, Yellow (C Itoh, Imagewriter) 12.00
Color pens (5) 12.00
(7) 15.00

Iron on coloring kit (containing 20 sheets of transfer paper and a set of 5 color pens) 15.00
Order Visa/Master Charge: 1-(800)-523-2445, x48 in PA 800-346-7511, x48 Or Send Check/Money Order and all Inquiries to: **HAL, PO Box 293, Scotch Plains, NJ 07076** 10-72

DESCO Software. Our new software is useful and easy to use and kind to your pocket. Send \$1 (refund with first order) for our latest catalog to...**DESCO, 907 Howard Rd., Starkville, MS 39759.** 11-71



DISK DOUBLER Notches 5 1/4" diskettes. Send \$6.95 to **Computer Hardware & Software, 1815 26th St., Cuyahoga Falls, Ohio 44223.** 10-71

DISK DRIVES \$99

New full or half height for II+, IIc. 90 days warranty. Add 10% for one year warranty. Add \$5 shipping. **Kyntek Marketing, PO Box 13070, Minneapolis, MN 55414.** 612-379-1020. 11-72

DSDD DISKS 49¢

SSDD DISKS 47¢

Dysan, Xidex, Etc. A large software manufacturer goofed! They made 1000's of copies of their programs then they found the bugs in the programs. Instead of re-using all of these disks, they have given some of them to us to liquidate. These are top quality Dysan, Nashua, Wabash, and Xidex disks. These disks have met far more exacting tests than almost all new disks, since each one has been individually written on and then tested for read write errors according to the exacting specifications of the manufacturer. They have been bulk erased (degaussed) and are totally blank and ready for formatting. We are selling them in lots of 100, 250, and 1000 complete with envelopes, hub rings, and labels. You can have 1000 DSDD disks for \$490, 250 for \$147, 100 for \$63, or 1000 SSDD disks for \$470, 250 for \$143, or 100 for \$61. Return or replacement for 30 days, if not 100% satisfied. Shipping and insurance add \$5 per 100 disks. **BCE 202-944-3900.**

Does anyone out there know a service for Alpha Syntauri software? Keith Hammond, 1600 Delaware Ave., Cape May, NJ 08204.

EDUCATIONAL, SMALL BUSINESS, and Home Applications Software. More than 6000 programs available at low prices. Pre-school, elementary, high school, college level, business education, office and accounting applications. Send for free personal catalog. Specify type of software desired and your computer type. We have Apple, IBM, Commodore software and others. Schools and institutions welcome. Write to **Elkhorn Computers, Box 906C, Baker Oregon 97814.** 10-70

Educational, Small Business, Home Applications Software. More than 6000 programs available at low prices. Send for free personal catalog. Specify type of software desired and your computer type. Schools and institutions welcome. Write to **Elkhorn Computers Box 906D, Baker, Oregon 97814.**



FRANKLIN ACE 1000 chip set, includes: 3 original Franklin ROMS, 6502 CPU, FDC Chiip, Character Ship, 24S10N, Gate Array, 14.318mhz xtal. \$45 per set, ppd. Keytronics keyboard with cable, \$20.00 ppd. We have Joysticks, disk controller cards, otherboards, parts lists and cables, send \$1.00 for complete list. **Ward Lindsey, 1500 Walnut Ave., Kirkwood, NJ 08043.** 11-71



We save you money

FREE DISK STORAGE BOX with the purchase of 30 high quality disks at only \$29.95. Try 30 disks for a month, if for any reason you don't like them, just return them for a full refund. These disks carry a 5 year limited warranty and come with hub rings and tyvec envelopes at no extra cost. We will pack these disks in your free high impact polypropylene disk storage box that holds up to 60 disks. Order 30 high quality SS/DD disks for only \$29.95. Extra disk storage boxes are only \$9.95. To your total order add \$4 shipping and handling, even if you order 3000 disks and 30 free disk storage boxes your total \$&H is still only \$4. Visa, MC, checks and money orders accepted. Phone or mail orders. **Computer Budget Shopper 2203 Park Ave. O.V. Cheyenne WY 82007** Or Phone 307-635-2173. 10-72

FREE SAMPLES! Our DISKINVOICE SYSTEM (Apple INVAR package), is perfect for ANY small business. Only \$55 COMPLETE! Reliable, tested, unparalleled. Effortless to learn, simple to use. Two disks, excellent documentation. Extremely friendly, thoroughly professional and USEFUL! Why pay more? Write: **BROADWAY SOFTWARE, Suite 136, 660 Amsterdam, New York, NY 10025.** 5-71

FREE! Shop By Modem! Call our innovative electronic shopping center, **Fantasy Plaza, by Modem** at (818)840-8066. 10-79

GAME LOVERS Apple family public domain educational, logical, funny. Five D/S volumes run on S/S drives. Free listing. Send name, address to **RD 3 Box 384, Clarks Summit, PA 18411.** 10-70

Games!!! for the Apple IIe, IIc and III systems. Public Domain Disk full of games for \$19.95. Send check or money order to **Gennaro Conte, 2522 Holland Avenue, Bronx, New York 10467.** CompuServe ID: 74005,1064. 9-76

If you do **MACINTOSH MEMORY UPGRADES** you will want THE HEADER. Complete 74HC253 unit, assembled and tested. \$10.00 each, 10+ : \$6.00. **Alex, 919-688-8950.** 9-70

LIQUIDATION! APPLICARD CP/M BOARD w/WORDSTAR PROFESSIONAL \$179!

CP/M Card includes 2.2 CP/M. Runs at 6mhz, 64K on board, use as a RAM disk under Apple DOS, 70 columns (no 80 col-

umn) card required upper and lower case. **Wordstar Professional** includes Mailmerge, Spellstar, Star Index, Limited quantities, act now. List price \$1019, our price \$179! Call **BCE 202-944-3900.**

MAC Software-Telos Filevision \$75.00 1st Base (Relational DBS) \$95.00 pfs: File & PFS: Report \$95.00 **Len (212)777-4353.**

Macintosh Public Domain Software. Over 25 Titles available. Prices as low as \$7.95 per disk - quantity rates available, SASE gets free catalog. **Info Systems, 3333 W. 2nd St. #56-107, L.A., CA 90004.** 11-71

Microsoft Basic Compiler Apple II \$100.00, Fortran 80 Apple II \$75.00, Aeronca Financial Analyst List \$275.00 only \$45.00, Quark Word Juggler \$35.00 (opened), Osborne/M-H Microfinesse 2.2-List \$250.00 only \$35.00, Dakin5 Depreciation Planner \$50.00. **Len (212)777-4353.**

NEW APPLE ADD-ONS

Z-80 Card (Softcard cmpt.) \$29.95
Advance Logic Z-Card II w/software \$79.95
5A Power Supply \$35.95
Keyboard w/function keys (II+) \$39.95
Disk Drive (full or half height) \$99.95
Super Serial Card \$69.95
80 Column Card (Videx type) \$42.95
Extended 80 column w/64K (Ile) \$49.95
RS-232 Card \$35.95
16K Ram Card (II,+) \$29.95
128K Ram Card (II,+) \$99.95
Eprom Programmer \$49.95
Parallel Prt. Interface w/cable \$39.95
Disk Drive Controller \$29.95
Wild Card \$45.95
Speech/Talk Card \$35.95
90 days warranty. Add \$3 shipping.
VISA/MC add 4%. **Kyntek Marketing, PO Box 13070, Minneapolis, MN 55414.** 612-379-1020. 11-72

OKIDATA ML92/93 USERS. OKEDIT Downline Loading Apple Desing Kit makes easier to use the Custom-Designed characters of your Okidata printer. It is a completely menu driven software package that makes easy to design or re-design characters on your display screen. It comes with ready-made fonts and special characters sets. Send \$17 to **Micro-boards, PO Box 370, Rutherford, NJ 07070.** 10-70

ORIGINALS WITH manuals. Dollars and sense \$50; Visicalc \$75; Transend I \$25; Screenwriter II \$40; II+ or IIc. **212-524-4420.** 10-70

ProDOS RAMDISK TITAN NEPTUNE

For 128K and 192K boards. Use the whole board or save the first bank for 128K programs. COPY command included. \$20 check ppd. **Steven Humpage, 2427 NE 24th Ave., Portland, Or. 97212.**

ProDOS RAMDISK TITAN SATURN

For 32K, 64K, or 128K boards in slot 1 to 7. One or two boards at once. COPY command included. \$20 check ppd. **Steven Humpage, 2427 NE 24th Ave., Portland, OR 97212.**



STOCK PORTFOLIO - for the Apple II+, IIe & IIc computer system. Send \$19.95 in check or money order to: **Gennaro Conte, Gennaro Conte Associates, Inc., 2522 Holland Avenue, Bronx, NY 10467.** CompuServe ID: 74005,1064. 5-71

Software For Sale "Newsroom" \$35.00; Zork II \$25.00; Zork III \$25.00; Home Accountant \$45.00. All new, never used. Separately or all for \$115.00. **Montes, c/o P.O. Box 14251, Orlando, FL 32857.** 11-71

STOCK APPLE Integer BASIC cards manufactured by Apple. With Programmer's Aid - 1 ROM. All documentation included. \$3 + shipping. **515/233-1986** evenings. **PO Box 2331, Ames, IA 50010.**

THE LANDLORD'S HELPER This simple to use Apple system maintains all records for rental property, by owner and property. Owner, Property and Tenant list. Monthly and Y-T-D income vs Expense Reports, Amortizations, Depreciation, Backups and late notices plus more. Introductory price \$99 includes lifetime updates. Requires Apple II+ DOS 3.3 two disk drives. **Bill Patterson, 3400 Austin Ave., Waco, TX 76710.** 11-72

Used Apple Software \$8 each ppd. Flight Simulator II, Solo Flight, Bruce Lee, One-on-One, Sky Fox, Pro-Byter,

MicroLeague Baseball, MicroLeague 1984 Teams, F-15 Strike Eagle, Lode Runner, Championship Lode Runner, Up 'n Down, Assembly Language Programming, Extra K (128k), Bank St. Writer (128k), Compuserve's Vidtext (128k). Also a Kraft (Ile/Ill) joystick \$10 and a ILC power supply \$15. **Michael Krasowski**, 703 Wilson St., Chester, PA 19013.

WANTED: Computari "Financial Wizard" software and Atari CO17894 source listings. **C.T. Huth**, 130 Hunter St., Tiffin, OH 44883. 7-71

(109) ATARI COMPUTERS FOR SALE

ATARI 800 XL, \$80. **600XL** \$40. **Cal Weber Systems** 216-729-2808. 10-70

WANT TO BUY! Atari 810 Drive, Atari Basic cartridge. Send price list to: **R. Vincent**, Box 5877 Oildale, CA 93388.

(110) ATARI SOFTWARE, PERIPHERALS

ATARI ADVENTURES. See Compuquest Advertisement in Section 192. 11-72

ATARI Coin and Photo Inventory Programs. Menu-driven, expandable collection files. Disk. \$22.95 each or both for \$40.00. Money back Guarantee. **J. V. Technologies**, P. O. Box 563, Ludington, MI. 49431. 10-74

ATARI MAGAZINE programs on disk! Receive the programs from the top 2 Atari publications on a double-sided disk each month. One year subscription \$60.00, 6 Month subscription \$32.00, sample issue \$5.95. Send check or money order to: **FIRST BYTE**, P.O. Box 130822, TYLER, TX 75713. 9-71



ATARI OWNERS: Get the BEST in public domain software from the library of the Jacksonville Atari Computer Enthusiasts! Over 60 disks to choose from. Entertainment, GTIA graphics, Educational, FORTH, Communications, Utilities, and much more! Best of all, each disk is only \$7.95! Send a business size SASE for latest catalog. **JACE**, 1187 Dunbar Ct., Orange Park, FL 32073. 11-72

Atari 800, 810, 850, 410, Gemini 10, Letter Perfect, Bookkeeper, File Mgr., Games, & More. Bargain. (919)768-5459.

Atari Utilities Disk, over 20 useful programs. Send \$9.95 to: **BMT Software** 13100 S. 300 E., Draper, Utah 84020. 11-71



ComputerEyes

Write to find out about the free (public domain) video image ART GALLERIES being set up using ComputerEyes for ATARI computers. - Make custom T-Shirts, scarfs, etc. - Save Pictures to Disk - Capture images using a VCR and/or Video camera - Great for Computer Art, Computer portraits, Security, School fundraisers, etc. etc. - Many PRACTICAL Applications If you want your Atari to "see", then get ComputerEyes. Order Visa/Master Charge: 1-(800)-523-2445, x48 in PA 800-346-7511, x48 Or Send Check/Money Order and all Inquiries to: **HAL**, PO Box 293, Scotch Plains, NJ 07076
Atari 800, 800XL, 130XE Compatible ComputerEyes \$109.00
Panasonic/Ikegami Commercial Grade B/W video camera \$139.00
Underware Ribbons let you make iron-on transfers.
Black (Epson 80, ImageWriter, Oki/Star Gemini) 12.00
Color pens (5) 12.00
(7) 15.00
Iron on coloring kit (containing 20 sheets of transfer paper and a set of 5 color pens) 15.00
Order Visa/Master Charge:
1-(800)-523-2445, x48 in PA
800-346-7511, x48 Or Send Check/Money

Order and all Inquiries to: **HAL**, PO Box 293, Scotch Plains, NJ 07076 10-72

DOING IT IN SPANISH

Language learning strictly for adults. Disk for 800XL DOS3. Includes phrases, reference sections, and dictionary. \$9.95 + \$1 shipping. **MOORE-FANTONI**, 1421 W. 19th St., Lawrence, KS 66044.

Free Full featured calculator alarm watch when you join our software rental club. One time fee - \$39 to enjoy and test 1 title at a time, \$65 for 2, for 30 days. Fee is refundable at end of year. Free 10+ pages catalog. **BONUS:** each person you get to join the club, you get a \$5 credit!! We also buy/sell used software. **Franco Bucci Co.**, 2 Glenhaven, Glenolden, PA 19036. 10-71

GOING OUT OF BUSINESS SALE! Our entire inventory of Atari software is available at savings of up to 95% off the retail price. All categories of software still available. Write or call for a free price list. **Software Network Inc.**, 16W655 Mockingbird Ln., Suite 108, Hinsdale, IL 60521. 312-323-3868. 10-71

ORIGINAL ADVENTURE: The Colossal Cave Adventure faithfully reproduced from the large mainframe version. Dwarves, troll, dragon, snake, pirate, magic, mazes, treasures and much more! 86 hints and SAVE game feature. The "classic original" that started the whole adventure craze! 32K tape, 40K disk, \$15. **Bob Howell**, 3 Twin, Windham, NH 03087. 10-71



P/D SOFTWARE unusual quality programs. Utilities games applications printer language graphics. 1 @ 5.95, 3 @ 5.00. **SASE List**. **JAXBBS**, P.O. Box 17201, Jacksonville, FL 32216. 11-72

Public Domain Software. Disk full - Both sides. Only \$6.95. Other offers included. You'll be pleased. **Patnor**, POB 370782, El Paso, TX 79937. 6-70

SCRAMBLER - The name says it all. Your Atari program written in BASIC can be scrambled so no person can read or change your program. Available on disk for \$7. You can receive our catalog of Game and Utility Programs by sending \$1 (refundable with order). **RWR Enterprises**, 3703 Rust Road, Annandale, VA 22003. 7-75



Seneca Software sells all Atari products from new systems to software. Best Brandname software, too! Paper Clip by Batteries Included \$47.97, Mindwheel by Synapse \$26.75, Print Shop by Broderbund \$29.97. All prices include shipping. For information write or call. To order send us your name, address, tel. no., item(s) required and payment. Personal Checks (allow 10 days to clear), Money Orders, Cashier's/Certified checks, VISA and Mastercard accepted. If paying by VISA or M/C we need card name, account no., and expiration date also. PA residents add 6% Sales Tax. **Seneca Software**, 1104 Seneca Drive, R.D.#2, Harmony, PA 16037 (412)452-8418.

Service Manuals with schematics for Atari 800XL or 1050 only \$17.50 each, for Atari 400/800 or 810 \$25.00 each. Add \$2.00 shipping per manual. **Electronic Dimensions**, P. O. Box 1846, San Luis Obispo, CA 93406.



Telelearning Modem with Software. Full featured, direct connect auto dial/answer. Completely menu driven, auto log-on, uploads and downloads to disk or printer, unattended operation. Package includes direct access to over 50 databases with no sign-up fee. **Don't miss this offer**, only \$39.95. Summer Games II, Fast Load by Epyx, Mindwheel by Synapse, your choice at \$26.75 each. All prices include shipping. Wide selection of Brandname software available. To order send us your name, address, tel. no., item(s) required and payment. Personal Checks (allow 10 days to clear), Money Orders, Cashier's/Certified Checks, VISA, Mastercard accepted. If

paying by credit card we need card name, account no., and expiration date also. PA residents add 6% Sales Tax. **Seneca Software**, 1104 Seneca Drive, R.D.#2, Harmony, PA. 16037 (412)452-8418.

(111) HOMEBREW SYSTEMS

ADD 5 MEGS to most anything, drive and controller kit \$300. **Digital Search** 803-877-9444.



Televideo 806 - CPM System, 64K, 2-serial, 1-parallel, 6-RS422 ports, 2-Panasonic drives. Wyse-50 terminal with Wyseword option. Software Wordstar, Calcstar and much more. Service manuals and user manuals for both. Complete \$1100.00 add postage. 406-748-2563 **Butch Morse** Box 342 Colstrip, MT 59323 11-71

(112) NORTHSTAR COMPUTERS

FOR SALE: 2-NortStar Horizons, 2-18mb HardDisks, HS10 Boards 3-64k boards, 16k & 32k memory boards, 2-Soroc Crt's, 1-Televideo Crt. 500 disks full of software. Best offer call **Jonathan**, (305) 782-1771 or (305) 781-0713 11-71

For Sale: Northstar Advantage. DS/DD double floppy disks. Epson MX-100 printer. Inventory, A.P., Super Calc, Wordstar, dBasell, price very reasonable. Call **Darryl Jackson**, 205-459-2835. Nites: 459-2630. 9-70

HORIZON CPM NS DOS 2-8 inch SSDD drives, 2-5 inch SSDD drives. Many disks with software \$600. **Mike** 718-332-2826. 10-70

I Buy used Advantages and Horizon systems including boards printers terminals. **Don**, Box 327, Lake Mary, FL 32746 (305) 322-5004. 24 hours. 11-72

(113) COMMODORE COMPUTERS FOR SALE

COMMODORE We buy and sell used equipment. Call **N.M.** at 316-283-0208 CST. 10-74

Commodore Plus/4g 1541 Disk Drive, 300 BAUD modem, printer, joystick, over \$100 in software. All for \$375.00. Call **Roy Johnson** after 5 P.M. (614) 374-4174 11-72

DSDD DISKS 49¢ SSDD DISKS 47¢

Dysan - Xidex - Etc. A large software manufacturer goofed! They made 1000's of copies of their programs and then they found the bugs in the programs. Instead of re-using all of these disks, they have given some of them to us to liquidate. These are top quality Dysan, Nashua, Wabash and Xidex disks. These disks have met far more exacting tests than almost all new disks, since each one has been individually written on and then tested for read write errors according to the exacting specifications of the manufacturer. They have been bulk erased (degaussed) and are totally blank and ready for formatting. We are selling them in lots of 100, 250, and 1000 complete with envelopes, hub rings and labels. You can have 1000 DSDD disks for \$490, 250 for \$147, 100 for \$63, or 1000 SSDD disks for \$470, 250 for \$143, or 100 for \$61. Return or replacement for 30 days, if not 100% satisfied. Shipping and insurance add \$5 per 100 disks. **BCE** 202-944-3900



Huge Inventory Commodore 64 hardware, software, accessories and printers. Free catalog. **Competition Computer**, 2629 W. National, Milwaukee, Wisconsin 53204. 414-672-4010, 800-662-9253 Nationwide, 800-242-7902 Wisconsin. 7-71

MOS TECHNOLOGY CUSTOM ICs for VIC-20 & C-64, PET etc. Fast delivery. In Stock: 6510CPU, 6525TPI, 6526CIA, 6560/67, 6581SID, 82S100PLA (U-17), 74LS629 (U-31) etc. New - 100% solid state way to cool-down 1541/1571 drives! New CMOS soft cooler sets (one CMOS 6502CPU, two CMOS 6522VIAs). Now only: \$39.95 set, S & H - \$2.50. New improved power supply for C-64/VIC-20 - only \$29.95, S & H - \$4.00. **KIM-1** computers & accessories! Computerfacts -

detailed service documentation! Free 64k - 150ns dram sets with orders. Much, much more - see our ad in "ICs and Components" section of this issue. Catalog - \$2.50. **K.BOUFAL-CONSULTING SERVICES**, 244 Fitzwater Street, Philadelphia, PA 19147. (215) 925-6469.

PUBLIC DOMAIN software IBM PC & Jr., C-64. Free list. Sample disk \$5. **RPM**, 2019 Foucher, New Orleans, LA 70115. 10-71



"REAL" Used computers. Ask about our "You Gotta Be Happy" guarantee! While they last! Apple II+ \$325. Call **Shreve Systems**, 318-865-6743, 4-8pm. 11-71

(113A) COMMODORE COMPUTERS WANTED

Ultra New software for Commodore 64: Wanting to trade!! Send a New List! **Charlie Burke**, 4404 Leeds Rd., Louisville, KY 40216

WANTED: COMMODORE 64 computers; \$75 for those in working condition. Please call 205-221-5211 4-74

WANTED: DEAD or alive VIC-20 & C-64 computers & accessories, drives etc. Write with full information and include prices. Dead computers are especially welcomed. **K.BOUFAL-CONSULTING SERVICES**, 244 Fitzwater Street, Philadelphia, PA 19147.

(113B) COMMODORE SOFTWARE, PERIPH.



\$1000 MONTHLY EASY with your C64 or C128 with disk. Complete business setup. Our fantastic, nine command mailing list program, plus a data base of 10,000 hot, fresh opportunity seekers and mail order buyers on disk, ready for you to use, advertise and sell, like we do. Plus 4 great business reports and ad mats ready for you to add your name and run. All for only \$250.00. Cheapest going business you'll ever buy. **Accent Services**, POB 1722, Simi Valley, CA 93065. 11-73

100's of FREE SOFTWARE programs for Commodore 64 available through the **Public Domain Users Group**. For information send SASE to: Public Domain Users Group, Box 1442-CO, Orange Park, FL 32067



64 DRAWER. Draw, color, load, and save Hi-Res Pictures with our Commodore 64 and joystick. Specify tape or disk. Send check or money order \$5.95 USA only to **Roy Brewer**, 5122 McIntyre Drive, Knoxville, TN 37914. 11-72

900+ PUBLIC DOMAIN Disks/peripherals for IBM-PC, Apple, CP/M, Commodore, Compatibles. Catalog SASE or \$3.00 detail directory disk. Specify computer type. **PanWorld International**, 422 Halsey Road, North Brunswick, NJ 08902. 10-70

ADULT ADVENTURE Game "Naughty Bytes." A Ribald Masterpiece for your computer \$20.00. **Life** - Machine Code version of the classic pattern producing program, \$10.00. **Hyperball** Pinball at its best, \$12.00. All programs on Commodore-64 disc. Go Berzerk - Get all three programs for a mere \$35.00. **FTW Products**, 154 S. Hedges St., Dayton, Ohio 45403. 9-76

(ALMOST)FREE PROGRAMS AND PROJECTS. At least, there's no money involved: we'll trade one of our programs or projects for the VIC-20 and C64 (ranging from games to fast searches and logic probes to peripheral interfaces) for your help in deciding which of those programs and projects to market. Fill out our one-page questionnaire, and we'll send you your choice of program or project. We want to hear from you, whether you're a beginner or an expert, and whether you're more interested in programs or in equipment. No obligation of any sort on your part - not even to return

the questionnaire. Send your name and address (a postcard is fine) to **HomeBrew Systems**, Box 8204-Q1, Pittsburgh, PA 15217-0204.

AUDIO TUNE-UP program converts C64/128 into full function audio generator. Instantly select frequency, waveshape, gain (volume), single or multitone signals. Produces automatic or manual frequency sweeps. No external hardware required...simply load and run. Use to evaluate, service or design audio channels in stereo, VCR, TV, monitor or computer, etc. Data sheet included. \$18.95 (optional backup disk add \$5.00). **SOLAS PRODUCTS**, Box 665, Springhouse, PA 19477. Audio Tune-Up...Because a clean sound matters! 10-70



Attention FOOD LOVERS. The "COMPUTER CHEF" IS HERE!! Computer cookbooks are now available on diskettes for your Commodore 64. They are quick and easy to use. We have: **APPETIZERS, CANDY, CASSEROLES, CHICKEN, QUICKIE MEALS, DESSERTS, MEXICAN, MICROWAVE, PIES, SINGLES/ DOUBLES, SEAFOOD**, many more available soon. Each disk sells for \$12.95; any 3 for \$29.95; a set of 10 for \$99.95. Send check or money order to: **COMPUTER CHEF**, Crescent Branch, P.O. Box 7451, Golden, CO 80403. 303-642-0330. Inquiries send SASE. Please allow 3 to 4 weeks for delivery. 303-642-0330. 6-71

BIBLE STUDY program for the Commodore 64. Complete with on-line scripture text for KJV, RSV, NASV, NIV, TLB. Continuous background music available while participating. \$19.95. (Disk only). **Risen Software**, 1528-H Spartan Village, East Lansing, MI 48823. 10-70

BOWLING SECRETARY computes statistics, handicaps. Handles substitutes, blind scores. Up to 15 players per team. **PFA**, 651 N. Houghton, Tucson, AZ 85748, \$34.95. 602-296-1041. MC/Visa 10-70

BULLETIN BOARD SOFTWARE for your Commodore-64! We have all kinds of BBS Software including Dial-Your-Match!! Order on credit card by modem at 818-840-8066 or send SASE to Box 6055, Burbank, CA 91510. 5-73



C-64 DISK DRIVE OWNERS

Know exactly what is on every disk you own. Disk Library prints reports and disk labels. Other features include update, search, and view disks. Supports commonly used dos commands and is the only program of its type to read 99% of all disks. Disk Library comes with an easy to use manual and 90 day warranty.

TAKE CONTROL OVER YOUR DISKS NOW!!!

Complete Commodore Repairs

Commodore "64" ... \$45
1541 Disk Dr. \$60
★ 8032 4032 \$65
★ 1702 Monitor \$50
VIC 20 \$35
8050 disk drive \$65
Commodore "16" ... \$40
8023 4023, MPS 801, 1526 \$60

★ Excluding Picture Tube

T.C. SERVICE

Hwy. 36 West
Hartsell, Ala. 35640
205-773-1077
1-(800)-221-7770



HOUSE of IBM™ COMPATIBLE

featuring
PC+PLUS™
pc/xt/at expansion cards

**SPECIAL
OFFER!**

BELTRON PC/XT

IBM™ Compatible

BELTRON MONO PC/XT

\$999

BELTRON COLOR PC/XT

\$1199



Standard Features:

- 640K Standard on System
- INTEL 8088, 4.77 MHz
- 8 Expansion Slots
- 135W Power Supply with Four Drive Connections
- Enhanced Keyboard with LEDs
- Two DS/DD Half-Height 360K Drives
- Socket for 8087 Math Coprocessor
- 2 Serial Ports/Game Port
- Parallel Port
- 4 EPROM Sockets
- Monochrome Adapter or Color Graphic Adapter
- High-Resolution Amber or RGB III Color Monitor
- Clock/Calendar
- IBM Compatible
- 90 Day Limited Warranty

Optional Features:

- 10 to 20 MB Hard Disk
- Tape Back-Up
- Enhanced Graphic Card
- Monographic Card
- Super High Resolution Color Monitor
- 8087 Math Coprocessor
- Low-Cost Network Workstation

Enhanced Keyboard for IBM™ PC

- Enlarged return key and shift key
- L.E.D. indicators on "caps lock" and "num lock" keys
- Fully IBM™ compatible

\$79⁰⁰

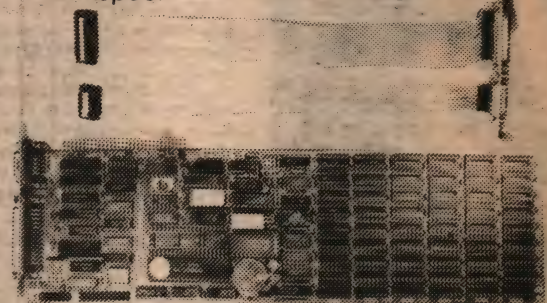


Enhanced B5151 Keyboard \$129⁰⁰

PC Plus™ Multifunction Card

- 384K RAM Installed
- 2 RS-232 Serial Ports
- 1 Parallel Port
- 1 Game Port
- Real Time clock with battery back-up
- RAM Disk
- Printspool

\$199⁰⁰



130 WATT Power Supply

- 4 Drives Power Plugs
- Side Switch Model like IBM™

\$99⁰⁰

192 WATT Power Supply for AT

Available at **\$179⁰⁰**



Case for IBM™ Motherboard & Compatibles

- Opens from top for fast easy access
- Hardware for 2-4 Drives
- Metal Casing
- Quality Guaranteed

\$69⁰⁰

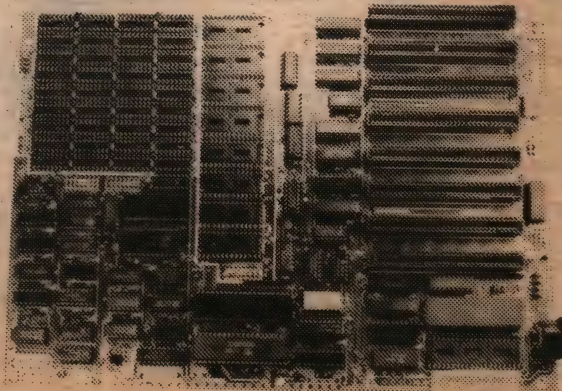


NEW

IBM™ PC/XT Fully Compatible Motherboard

- Assembled and Tested
- 8 I/O Slots
- 8088 Microprocessor With 8087 Option
- Up to 640K RAM On Board*
- Runs All IBM™ Software

\$195⁰⁰



*Optional

UPGRADE YOUR IBM™ PC

[AND ALL COMPATIBLES]

MOST MAJOR CREDIT CARDS ACCEPTED



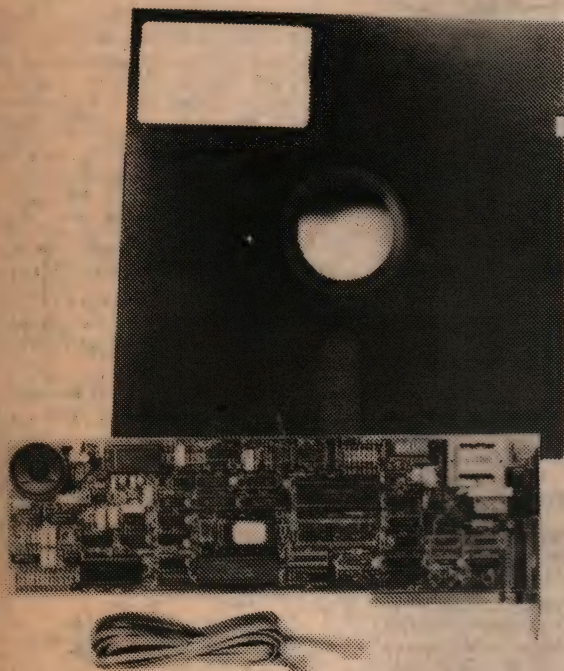
OEM and Dealer inquiries invited



300/1200 Band Internal Modem

- Fully Hayes Compatible

\$199⁰⁰

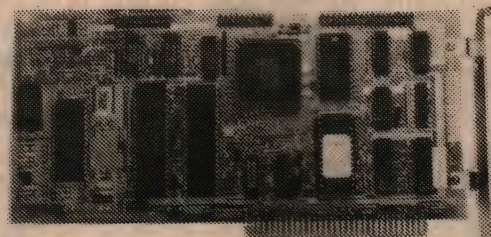
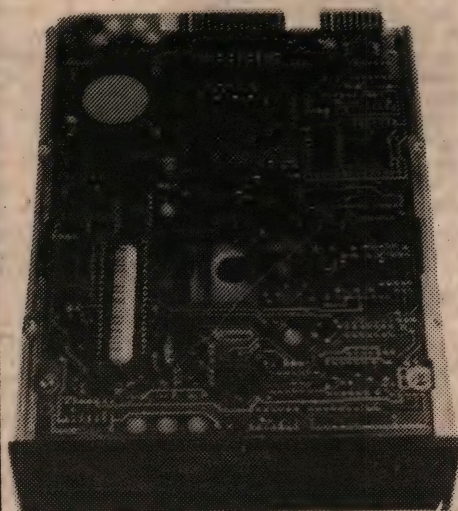


External Also Available

\$229⁰⁰

Hard Drives

- Internal 10 MB \$450.00
- Internal 20 MB \$650.00
- Internal 20 MB (Full Height) \$550.00

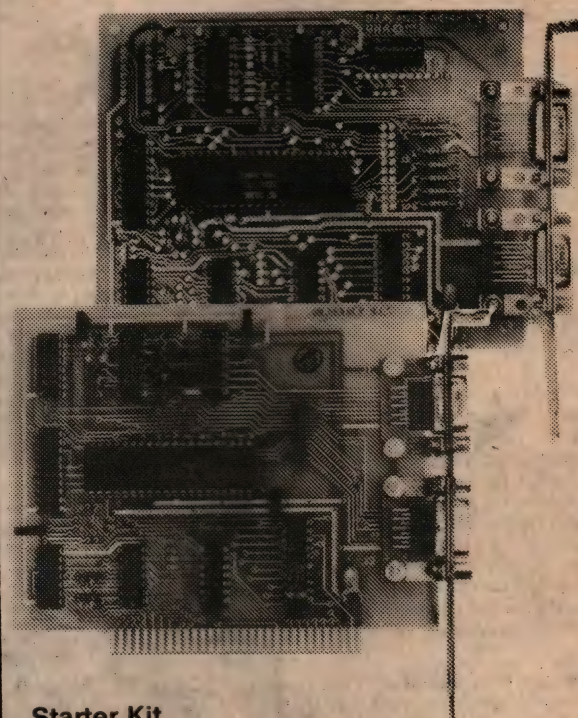


TEAC 20 MB Cassette/Streamer Back-Up

\$599⁰⁰

Local Area Network for IBM, PC & Compatibles.

- Uses "NOVELL" File & Record Locking



Starter Kit

- Master
- Slave
- Software
- Cable
- Documentation

\$795⁰⁰

PC PLUS™ ADD-ONS For IBM™ PC and all compatibles

- | | |
|---|---|
| • Disk Controller Card \$59.00 | • Color Graphics Card \$89.00 |
| • Disk I/O Card (2 Serial, Parallel, Clock & Game) ... \$139.00 | • Color Card/Parallel Port \$119.00 |
| • Parallel Printer Card \$39.00 | • Monochrome Graphic Card/Printer Port \$129.00 |
| • High-Res Monochrome Card \$79.00 | • Speaker \$2.00 |
| • Serial Card \$49.00 | • I/O Plus Card \$89.00 |
| • Game Adapter \$29.00 | • 512K Memory Card \$69.00 |
| • 384K Memory Card \$69.00 | |

UPGRADE KIT FOR IBM™ PC/XT

- 10 MB Hard Disk Drive... \$299.00
- 20 MB Hard Disk Drive... \$459.00
- DTC Controller Card ... \$199.00
- Xebec™ Controller Card \$175.00
- Western Digital™ Controller \$169.00

EPROM Programing

- For IBM™ & Compatible... \$159.00

640K Turbo Motherboard

- IBM™ Compatible \$429.00

DISK DRIVES

- TEAC™ 360K DS/DD Floppy Drive \$89.00
- Qume™ 360K DS/DD Floppy Drive \$69.00

MONITORS

- RGB Color Monitor \$299.00
- Composite Monitor \$79.00
- Monochrome TTL Monitor \$99.00

CABLES

- Parallel \$9.50
- Serial \$9.50

• 931 Arch Street • Philadelphia, PA 19107 • (215)627-5454 • 627-7340
 18 First Avenue • New York, NY 10009 • (212)505-1970
 #14 Route 73 • Marlton, NJ 08053 • (609)596-6125



Retails at \$34.95 but is now available from the developer for \$15.95 PP. Genesis Software, 1147 E. Broadway #45, Glendale, CA 91205.

FREE SOFTWARE

Each order received will get a FREE copy of Ez-Dos. Ez-Dos is an extension to the Commodore Disk Operating System enabling you to use all dos commands from a simple menu. Ez-Dos supports all dos commands, plus some Commodore didn't include like un-scratch, lock and unlock plus lots more!!!

C64 DISKS! Best games and programs. CHEAP! Free list! **BACKUP BASEMENT- CS**, 3119 Isabel Drive, Los Angeles, CA 90065. 10-71

C-64 FILE ENCRYPTON PROGRAM. Protect Easy script and Paperclip documents from prying eyes. Menu driven CRYPT-64 allows keys to 32 characters. CRYPTed files can be CRYPTed again giving multi-level protection. Menu driven for ease of use. C-64 Terminal Program. Solid, reliable, Ascii upload/download, word wrap, documentation on disk, menu driven. Send \$13.95 for each program or \$24.95 for both including postage and handling. Forth sources available separately. C-64 Forth utilities disk available for \$9.95. **THE SOFTWARES**, Rt. 5, 210 Clinton Lane, Clifton, Tenn. 37716. 11-72

C-64 SOFTWARE CHEAP!! Send for your catalog of game, home management, business, utility, and educational software available and you will also receive a disk utility program listing free along with details on how to make money at home with your C-64. Send to: **PACEWARE, INC.**, Box 64-A, Pompano Beach, FL 33074. 11-75

CHEAP BUSINESS SOFTWARE! Our own four month sales Journal Spreadsheet; Inventory Control System; Business Financial and Operations Analysis programs, plus mailing list manager with 500 names, home computerist data base. Disk/tape. Guaranteed. All for \$50.00. Or write for 100 names free. **Accent**, Box 1722, Simi Valley, CA 93062. 11-72

CHEMISTRY LAB C-64 Seventeen Programs (Disk Only) covers the entire field of Basic Chemistry. Total price \$20.00. Send payment to: **Dick Baker**, 1412 Jefferson Ave., Yakima, Wash. 98902 4-76

CODE CRACKER is a collection of disk backup and file copy programs for C64/128 that gives you alot of bang for the buck. You will receive: **SOLASDISKBACKUP** which maps out the disk on screen before it copies it, **4 MINUTE BACKUP** which copies almost anything at high speed, **SEQ FILE READER** which allows you to directly view sequential files, **COPY FILE** which copies individual program, sequential or relative files. Send \$18.95 to: **SOLAS PRODUCTS**, Box 665, Springhouse, Penna. 19477. 215-362-5028. "Because a clean copy matters." 10-71

COMMODORE 64! Software, programs, and backups. Send for list. **Disk Security Services**, PO Box 1282, Glastonbury, CT 06033. 7-71

COMMODORE 64 discount entertainment software. Newest Titles. Includes games from Infocom and SSI. Free Catalog. **The Adventure Store**, Commodore Software, Roscoe, IL 61073-0320. 9-70

COMMODORE 64 ASTROLOGY for fun or profit. Accurate. Inexpensive. **ASTROCOMP** compares signs between two persons in 16 different ways, \$6.95. **ASTROTRENDS** compares your signs to transiting signs of any day in 10 different ways, \$6.95. **ASTROCALC II** accurately calculates all horoscope information and aspects, \$16.95. **SQUARESCOPE II** accurately calculates and places information in houses. Six screens with complete aspects, \$26.95. All print hard copy. Disk only. Add \$3

postage & handling. **VIRGO SYSTEMS**, 16629 Lewis Circle, Delhi, CA 95315. 10-71

COMMODORE 64 SOFTWARE Rentals/Sales Why Buy Unwanted Software? Look before you leap! Preview it first. Free catalog: **Previewer! Inc.** Box 970, Dept. CS, Bronson, Florida 32621 4-76

COMMODORE ADVENTURES. See Compuquest Advertisement in Section 192. 11-72

COMMODORE PUBLIC Domain software, \$2.50 each. Disk \$3 each. 10 lot \$2.50 each 5lt. Send \$2 for catalog. **MKMC**, Box 506, Newton, KS 67114. 10-72

COMMODORE PUBLIC DOMAIN-343 programs, 28 disks; rent and copy all for \$25. (\$50 refundable security deposit required). Send \$5 for sampler (15 programs), or LSASE for more information; **Futuresystems**, box 3040(C), Vista, CA 92083.

COMMODORE RELATIVE FILES EXPOSED as being the most interesting subject within the Commodore System. Avoided because of inaccurate reports, Relative Files are no longer confusing when using the RFME tutorial. Complete text and 41 programs on disk represent the fullest coverage of relative files ever written. RFME analyzes: inventories, mailing lists, sorting, small business control, invoicing, and much more. You can now write your own Data Base As You Like It. Not canned programming. Basic programming for this easy access filing system fully explained as text progresses. Manual and Disk \$35. **RFME**, 1291 Cedar Blvd., Pittsburgh, PA 15228. 10-71

COMPLETE DISK Manager for C-64. Create, sort, print all your disk programs at machine language speed. \$17.50 postpaid. **Westamerica**, 1470 S.W. 19th Ct., Gresham, OR 97030. 10-72



ComputerEyes

Write to find out about the free (public domain) video image ART GALLERIES being set up using ComputerEyes for COMMODORE-64 computers. - Make custom T-Shirts, scarfs, etc. - Save Pictures to Disk - Capture images using a VCR and/or Video camera - Great for Computer Art, Computer portraits, Security, School fundraisers, etc. etc. - Many PRACTICAL Applications If you want your COMMODORE to "see", then get ComputerEyes. Order Visa/Master Charge: 1-(800)-523-2445,x48 in PA 800-346-7511,x48 Or Send Check/Money Order and all Inquiries to: **HAL**, PO Box 293, Scotch Plains, NJ 07076

Commodore-64	Compatible
ComputerEyes	\$109.00
Panasonic/Ikegami Commercial Grade B/W video camera	\$139.00

The programs below are all specifically designed to interface ComputerEyes digitized graphics to:

Print Shop	11.00
Doodle	11.00
Koala	11.00
Flexidraw	11.00
Underware Ribbons let you make iron-on transfers.	
Black (Epson 80, ImageWriter, Oki/Star Gemini)	12.00
Red, Blue, Green, Yellow (C itoh, Imagewriter)	12.00
Color pens (5)	12.00
Iron on coloring kit (containing 20 sheets of transfer paper and a set of 5 color pens)	15.00

Order Visa/Master Charge: 1-(800)-523-2445,x48 in PA 800-346-7511,x48 Or Send Check/Money Order and all Inquiries to: **HAL**, PO Box 293, Scotch Plains, NJ 07076 10-72

DATABASE MANAGER for C-64. New low price: \$19.00. Supports: Create, Add, Change, Delete, Total, Sort, Print(Screen or Printer). Write **MELCOMP**, P.O. Box 1085, Melbourne, FL 32901. 11-71

DISK DOUBLER Notches 5 1/4" diskettes. Send \$6.95 to **Computer Hardware & Software**, 1815 26th St., Cuyahoga Falls, Ohio 44223. 10-71

DISK OR CASSETTE. C64 software. Public Domain and back-ups from extensive library. Write for free list. **M & M Software**, P.O. Box 3111, Dept. CS, Terre Haute, Indiana 47803. 11-72



DOGONE! IT'S HERE! **DOGONE** provides thousands of handicapping combinations for race analysis. You choose the combinations and it analyzes. Cursor controlled screens for easy input and corrections. Optional printer output. C-64 disk or cassette \$39.95. There will be no disappointment with this one. **DOGONE P.O.** Box 14962, Orlando, FL 32857-4962. 10-70

FACTORY OVERRUNS at HALF PRICE! Trifling With Trivia disks for the Commodore 64 with one drive (printer optional). Great fun for one to eight players with capability to create your own question and answer disks. Choose the general category edition or sports edition for only \$9.95 each; or get a two disk set for only \$15.95 (plus \$2 shipping and handling per order). Send check or money order to: **MTR**, P.O. Box 2153, Streetsboro, Ohio 44240. 7-71

FAST HACK'EM copies full disk in 45 seconds w/1-2 1541's or MSD. Best CopyDisks on earth: **BACKUP BASEMENT-CS**, 3119 Isabel Drive, Los Angeles, CA 90065. 10-71

FREE 64 Software. Send cassette and \$3 postage and handling. **217 Computer Club**, Box 217, Dona Ana, NM 88032.8-72

FREE ADVERTISING. Programmers, software publishers, retailers. List your software with us. Referral service for commercial software. **SASE**, Westlakes Software Services, Box 458038-CS, San Antonio, TX 78280-8038. 11-71

FREE C-64 Home finance program with our catalog and price list. Send \$1 handling and **SASE**, Geyer, Carteret Mobile Park F-1, Carteret, NJ 07008.

FREE!!! NEW COMBAT SIMULATOR to introduce Blaze Software. **BUZZARD RAM-JETS**: 100% machine language, 32k, over 500 hours development, realtime tactics, 360 degree movement, 2 first person views, 1 or 2 players, variable, fast and FUN! \$4 (disk + s/h) to Box 17819, SLC UT 84117. Offer expires 10/15. After 10/15 price will be \$15.

FREE PROGRAMS! Commodore-64 /Commodore + 4/VIC-20/Commodore-1 6/T 199 -4A/all TRS-80's, Timexes. Send Stamps! **EZRAEZRA**, Box 5222-PCCT, San Diego, CA 92105.

FREE! SHOP by modem! Call our innovative electronic shopping center, **Fantasy Plaza**, by Modem at (818)840-8066. 11-79

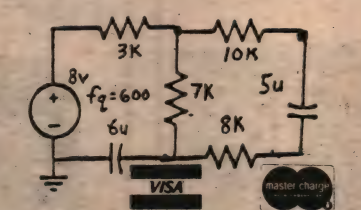
Handwriting Analyzer, Hangman, States And Capitals, Free Information. **CTL Co.**, 115 Bixby Drive, Milpitas, California 95035. 8-78

INTRODUCTORY OFFER! DATABASE, SPREADSHEET, WORDPROCESSOR plus 30 more Programs only \$5. 100 diff.

Public domain disks \$199. **SASE** for info. **Frugalware**, 440 W. Green, W. Haz., PA 18201. 9-70

Junkman Will Buy! I buy old scrap IC's, relays, circuit boards, diodes, any mixed junk, gold plated, transistors, connectors, dirty, broken, smashed or useless electronic junk - any amount! 1930 to 1985. Nothing refused! 10 years in business. Pack in boxes and ship UPS. Fast payment! **JUNKMAN**, 103 Saratoga St., Lawrence, Mass. 01842. 9-73

Koala Pad and **Graphics Software** (disk) includes programmers guide and software (disk), \$33. **Cardco** Light Pen and software (cass), \$12. **Travel Master** carrying case designed to hold C-64 and 1541 Drive, \$35. **Accounts payable/checkwriting** - accounts receivable/billing each, \$12. **Compu-Serv** Vidtex software and user's guide (disk), \$9. **Charleston Style** telephone, \$23. **AT&T** Telehelper -two-line hold with conference call feature, \$32. **UDS Computer Phone** - only \$8! All prices include postage and insurance. All software is original. Send check or MO (COD extra) to: **James Schott Jr.**, Box 1451, Bloomfield, NJ 07003.



Technical Programs Electronic AC DC circuit analysis Commodore-64 computes numerical solution to 63 branch, 40 node circuit. Branches of RLC, voltage, current sources, or controlled sources. Computer displays node voltages, branch voltages, currents powers, power factors, magnitude, phase step function, graphics. \$27.95 Disk, Tape; **Linear Programming System** solves 50 variable 35 constraint system. Constraints of less, greater, equal to. Maximize or minimize Z function. \$16.99. **Computer Heros**, PO Box 79, Farmington, Connecticut. 06032. Orders only 1-800-622-4070.

MICRO-DB/64 INVENTORY MANAGER The complete small business inventory management and sales program. Your Commodore 64 serves as a point-of-sale system for 500 items, automatically computing sales price, extended price, sales tax and total. A customized receipt with your company name and address is then printed, and inventory levels are adjusted. Low inventory quantities are automatically flagged. Send \$79.95 to **CORCORAN ENTERPRISES**, Box 42904, Fayetteville, NC 28301. **SASE** for more info.

NB DB Database program for C-64/128/VIC. Ideal for mailing lists, inventory - \$14.95 guaranteed. Send \$1.00 + **SASE** info. **NM & PA Enterprises**, 510 Little Creek Rd., Lynchburg, VA 24502.

NET-64 BBS Bulletin Board Software. Features include: 9 boards, E-Mail Chat, Up/Downloading with Xmodem and Punter, Matchmaking and Voting sections, Access Levels, Bulletins From Sysop, Feedback to Sysop, and more! Manual on disk. For 1 or 2 1541 drives and 1650 Autodemom. Only \$24.95 to: **Scott markowitz**, 1346 E. 86th St., Brooklyn, NY 11236. 11-71

One Key can call a mini-macro! Do 1-touch screendumps, directories, appends, hex-dec, color changes, tax computations. Define your own. Up to 239 characters per key. Four function keys become 16! Dozens/demo's included. Code fully relocatable. eith pages of docs. 23.95. **WORK-KEYS**, 4506 Twisted Tree Cv., Austin, TX 78735. 11-71

OracleDB - PAPERClipWP \$20 each Printshop \$20, Eight archades \$45, disks. Special 13 programs \$20. Check/M.O.: **Avera National Library**, 2632 New York, NY 10009 or 212-420-0953. 5-74.

Over 2200 Public Domain C64 programs to fulfill your every want or need. Select 20 progs. of your choice for \$8.95, or 100 for \$25. Send \$4 for a double sided, postpaid demonstration disk with catalog. **Eric Richardson**, 6230 Lark Valley, San Antonio, TX 78242. 6-72

PICK LOTTO numbers with your C-64. Send \$6 check or money order for disk to **Numerics**, PO Box 892, Bayonne, NJ 07002-0892. 10-72

PLUS/4 SOFTWARE: some free, some at cost. Games, utilities, tutorials. continuous development going on. **SASE** gets you current list. **Bill Tober**, Box 57, Stormville, NY 12582. 11-71

Quick Brown Fox Word Processing Program. New with documentation. Specify Comm-64 or VIC-20 cartridge \$15 ea. **Len (212)777-4353**.

RENTAL MANAGEMENT, small business and utility monitoring programs our specialty. **IBM Commodore only**. **Fabtronics**, 51 Quarry St. Brockport, NY 14420. 11-75

Russian-English editor cartridge turns C64 or VIC20 with printer into bilingual typewriter with limited wordprocessing. If you can type, you can use it. \$57.95. **Zal Liss**, 2130 Allen Str., Allentown, PA 18104; **SASE** 10-70

SAVE MONEY! Only 50 cents each for quality programs! Write or call for FREE catalog. **Chopper Software**, Box 256-C, Holland, MI 49423, 616-396-7577 4-72

SLING SHOT! The Better Desk Organizer. Available soon from **CYBERSOFT**. 10-70

SWAP C64 DISKS. (Public Domain) Write for list and include your list. **Granite State Trades**, PO Drawer 3490, Nashua, NH 03061-3490.

Swap C64 disks. Write for list. **Westpenn Trades**, 25 Hickory View Drive, New Castle, PA 16102. 9-70

TIC TAC TRIVIA, a game that combines Tic Tac Toe and Trivia. Over 30 categories of questions. Fun for the whole family. C-64 disk only. \$12.95. **Jeff Welsh**, 8717 Appletree Ln., Cherry Valley, CA 92223. 11-71

TOP SELLERS plus inventory reduction **SALE. LOW PRICES.** Send stamp or **SASE** for listing. **FABTRONICS**, 51 Quarry St., Brockport, NY 14420. 7-71

TWO GAMES for Commodore 64. Chain game for one or two players and Tank Mission. Joystick required. Specify tape or disk. Both for only \$4.00 (outside U.S. add \$2.00) check or money order to **Roy Brewer**, 5122 McIntyre Dr., Knoxville, TN 37914. 11-72

Telelearning Modem with Software. Full featured, direct connect auto dial/answer. Completely menu driven, auto log-on, uploads and downloads to disk or printer, unattended operation. Package includes direct access to over 50 databases with no sign-up fee. **Don't miss this offer**, only \$39.95. **Summer Games II**, Fast Load by Epyx, Mindwheel by Synapse, your choice at \$26.75 each. All prices include shipping. Wide selection of Brandname software available. To order send us your name, address, tel. no., item(s) required and payment. Personal Checks (allow 10 days to clear), Money Orders, Cashier's/Certified Checks, VISA, Mastercard accepted. If paying by credit card we need card name, account no., and expiration date also. PA. residents add 6% Sales Tax. **Seneca Software**, 1103 Seneca Drive, R.D.#2, Harmony, PA. 16037 (412)452-8418.

Unique Software catalog for C64, V20. Please send two first class stamps. **Reilly Associates**, Box 17144CS, Rochester, NY 14617. 11-72

VIDEO TUNE-UP program converts C64/128 computer into a full function color bar generator. It produces all standard video test patterns (crosshatch, color bars, purity field, gray scale, centering...etc.) plus it runs a completely animated alignment test. No external hardware or equipment required. **Com-**

pletely menu driven for ease of use. Shipped with monitor and television tune-up instructions. Send \$18.95 (optional backup disk add \$5) to: **SOLAS PRODUCTS**, Box 665, Springhouse, PA 19477, 215-362-5028. VIDEO TUNE-UP "Because a clear picture matters!" 10-71

WANTED 1541 Commodore Disk Drives, \$75 for those in working condition. Please call 205-221-5211 4-74

WANTED Software for Commodore 64 to trade. **Ronald Kendrick**, 8205 Sandidge Dr., Louisville, KY 40228. 10-70

WANTED to swap C64 programs. Contact: **Trevor Scott**, 6281 130th St., Surrey, B.C., Canada V3W-791. 11-71

WIN CASH, NEW CARS!

Get your share of over \$1,000,000.00 awarded each year to winners of puzzle contests! Use our software! Free details! **Computer Video Artistry**, 7744 Pickering Ave., Dept. 211, Whittier, CA 90602. 11-72

jubilee is the performer of 7.9220909236044E + 28 works of music and the chronicler of your ideas, dreams, and remembrances. For your copy (runs on C64) send a blank diskette to **Monty Lee Stark**, P.O. Box 1813, Surprise, AZ 85374. 9-71

(114) NORTHSTAR SOFTWARE PERIPH.

At Last! Public Domain User Group libraries available on rental! Thousands of programs & copy on your own computer at home. CP/MUG \$45, SIG/MUG \$125, Piconet \$25 for seven days rentals **619-727-1015** or National Public Domain, 1533 Avohill, Vista, CA 92083. 6-70

(115) IBM PERSONAL COMPUTERS FOR SALE

ABSOLUTELY SMASHING SOFTWARE \$5.95 PER DISK. PC-Write, PC-Calc, Time and Money, Poster/Banner, Commercial unprotect, PC-File, Utilities Galore, Cheap Assembler, plus many more! IBM PC, PC Jr., or MS-DOS Compatibles. Free Catalog. **SMASHING**, 33495 Del Obispo, Suite 160F, Dana Point, California 92629. 11-72

DSDD Disks 49¢

SSDD Disks 47¢

Dysan . Xidex . Etc. A large software manufacturer goofed! They made 1000's of copies of their programs and then they found the bugs in the programs. Instead of re-using all of these disks, they have given some of them to us to liquidate. These are top quality Dysan, Nashua, Wabash, and Xidex disks. These disks have met far more exacting tests than almost all new disks, since each one has been individually written on and then tested for read/write errors according to the exacting specifications of the manufacturer. They have been bulk erased (degassed) and are totally blank and ready for formatting. We are selling them in lots of 100, 250, and 1000 complete with envelopes, hub rings, and labels. You can have 1000 DSDD disks for \$490, 250 for \$147, 100 for \$63, or 1000 SSDD disks for \$470, 250 for \$143, or 100 for \$61. Return or replacement for 30 days, if not 100% satisfied. Shipping and insurance add \$5 per 100 disks. **BCE**, 202-944-3900.

Mint, under manufacturing warranty. \$1800. **818-334-1185**.

"PRINCETON GRAPHICS HX-12 COLOR MONITORS" in original, unopened boxes. List price - \$695. Must sell at \$4435. Call 201-691-0655.

★ ★ ★
"REAL" Used computers. Ask about our "You Gotta Be Happy" guarantee! While they last! Apple II + \$325. Call **Shreve Systems**, 318-865-6743, 4-8pm. 11-71

(115A) IBM PERSONAL COMPUTERS WANTED

DONATIONS WANTED: Working PCs for tax-deductible medical college. **Donald Jue**, MD, AMC ME413, Albany, NY 12208, 518-445-5318. 9-70

★ ★ ★
\$3.00 Per Disk IBM Public Domain Software. For catalog send SASE to **Windward Public Software**, Box 4630, Kaneohe, Hawaii 96744 10-74

I would like to buy IBM PC or XT at reasonable price. Please call: **Mark Floyd**, 502-348-0891.

★ ★ ★
"REAL" Used computers. Ask about our "You Gotta Be Happy" guarantee! While they last! Apple II + \$325. Call **Shreve Systems**, 318-865-6743, 4-8pm. 11-71

(115B) IBM SOFTWARE PERIPHERAL

1000+ Public Domain disks for IBM-PC, Apple, Commodore, and 5 1/4" CP/M computers. Send \$3 for detail directory disk or 39¢ SASE for listing. Specify computer format. **Pan World International**, POB-414, Storrs, CT 06268. 9-73

1000's of FREE IBM SOFTWARE programs available from **Public Domain Users Group**. Over 4400 members worldwide. Over 80 computer formats. For information send SASE to: **Public Domain Users Group**, Box 1442-CI, Orange park, FL 32067.

\$47 ACCOUNTING SOFTWARE! Little Accountant That Can maintains 100 personal or product accounts, prints statements, records expenses under 12 redefinable categories, and prepares summary reports (instant tax preparation). Ideal for small and home-based businesses. Available for **BASICA/GWBASIC**. **Dennis Gimlin**, Little Software Than Can, 7322 Oak Manor-37, San Antonio, TX 78229. 512-349-3924. 9-71

Amortization Schedule - \$15.95; Amortization schedule, depreciation/acres - \$19.95; Fill in The Blanks to calculate your amortization schedule; depreciation/acres. **P & J SYSTEMS**, P.O. Box 1003, Marlton, NJ 08053.

Ashton-Tate Framework \$250.00, Peachtree 5000 \$75.00, Hayes Smartcom II \$60.00, Dow Jones Market Analyst \$150.00, Digital Research Micro Focus Forms 2 \$45.00, Concurrent-CP/M \$100.00, Dr Draw \$100.00, Breakthrough's Timeline (Project Manager) \$125.00, Samna Word 1 \$75.00. **Len** (212)777-4353.

★ ★ ★
Basketball Statistics. Compute, store, update basketball team, opponent, roster info, game info, and schedule information. Graphing option available which works with dGraph III. Stat Program \$65, Graphing option \$35. Add \$2 shipping to **Pro-Tech Micro Services Inc.**, 125 Saratoga Ave. Waterford, NY 12188.

"C" Compiler \$49. Included are assembler debugger ISAM libraries for MS-DOS 2.x + (+ S/H) 516-499-9100. **STANHOPE**, 777 Larkfield Road, Commack, NY 11754. 9-70

★ ★ ★
CROSS-ASSEMBLERS. PC or MS-DOS

2+ . Easy to use, these assemblers are fully Motorola compatible, and full of advanced features. Programmer amenities include, up to 30 input files, symbol table carry through between assemblies, and either Motorola or Intel format object code, among others. Currently supported processors: MC6800/2/8, MC6801, MC6804, MC6805, MC6809 and MC68HC11. \$39.95 each, 3/\$110.00, 6/200.00. ORDER NOW, and receive as a bonus Intel and Motorola loaders, and EPROM programmer utilities. **CROSS-SOFT**, 102 Rector Ave. Suite 100, Manor TX 78653, 512-272-4511 Sunday noon through Friday noon. 11-72

CRYPTOGRAMS

Do you enjoy solving cryptograms? This program takes care of all the housekeeping. All you do is think. Solve puzzles, save them, make your own, print them. Even gives hints when you're stuck. 300 cryptograms included. Available in PC/MS-DOS or CP/M versions. Specify your machine or disk format. Only \$10. (If you would like the program listing. \$20). **Puzzles**, 1404 Woodtone Drive, West Chester, Pa 19382, (215)399-0963. 11-75

Calculator Program for IBM PC, Jr, or compatible. New Version 1.40 can install background resident, features RPN or algebraic operation, number bases 2-16, trig, log, financial calculations, calendar display, more. DOS program diskette \$15.00 plus sales tax in California. SASE for more information. **Tom Ginn**, P.O. Box 24842, San Jose, Ca. 95154.

Communications Boards; Unused, genuine IBM: BSCA \$100, SDLC \$100, Cluster Adapter LAN \$150, Cluster Cable Kit \$50; **Joel Sampson**, Box 14381, Columbus, OH 43214, 614-262-2995. 9-70

★ ★ ★
DIRT CHEAP SOFTWARE Topnotch IBM PC, MS-DOS, and PC Jr. public domain and freeware programs for \$4.95 per disk. Send for free catalog. **PD** 33495 Del Obispo, Suite 160D, Dana Point, California 92629. 11-72

DSDD Disks 49¢

SSDD Disks 47¢

Dysan . Xidex . Etc. A large software manufacturer goofed! They made 1000's of copies of their programs and then they found the bugs in the programs. Instead of re-using all of these disks, they have given some of them to us to liquidate. These are top quality Dysan, Nashua, Wabash, and Xidex disks. These disks have met far more exacting tests than almost all new disks, since each one has been individually written on and then tested for read/write errors according to the exacting specifications of the manufacturer. They have been bulk erased (degassed) and are totally blank and ready for formatting. We are selling them in lots of 100, 250, and 1000 complete with envelopes, hub rings, and labels. You can have 1000 DSDD disks for \$490, 250 for \$147, 100 for \$63, or 1000 SSDD disks for \$470, 250 for \$143, or 100 for \$61. Return or replacement for 30 days, if not 100% satisfied. Shipping and insurance add \$5 per 100 disks. **BCE**, 202-944-3900.

De-bug monitor for 8086/88 system. Runs from disk or rom. Source code supplied so you can customize for your system. Great for debugging PC clones and home brew systems. Supplied on floppy disk with instructions. Price only \$39.95 plus \$2. shipping. Check or money order. Send orders to: **Skilcraft Data Systems P. O.** Box 47471, Atlanta, Ga. 30362 (404)934-6883.

Dial-Your-Match BBS software. Order by Modem at (818)840-8066 or send SASE to Box 6055, Burbank, California 91510. 11-79

EZ-WordZ WORD PROCESSOR. Full featured, for IBM PC and compatibles, in BASIC. with automatic wraparound, global search/replace, on-screen dark print and underline, micro-justification, word count, examine and delete disk files, set fonts, graphics. On disk, with MailMerge and 24-page manual. \$25. **D. Hinrichs**, 2116 SE 377th, Washougal, WA 98671.

★ ★ ★
FORTUNE WHEEL! Now play the popular "Wheel of Fortune" television game

show at home on your IBM or compatible PC! From 1 to 3 players can enjoy the challenge, excitement and fun of **FORTUNE WHEEL**. This reasonably-priced, easy-to-use, fast-paced game features realistic graphics, color (or monochrome) displays, sound effects, and operates just like the popular television game show. Spin the **FORTUNE WHEEL** for an amount, score if letters you enter are in the puzzle, win a round if you solve the puzzle, play 3 rounds plus a bonus round if your score is highest. **FORTUNE WHEEL** requires an IBM PC, PC Jr or Compatible Personal Computer, 128 KB Memory, 1 Diskette Drive (320 or 360KB), Color Graphics or Monochrome Adapter, 80 Column color or monochrome monitor. Software diskette contains user instructions and Color and Monochrome versions of the **FORTUNE WHEEL** program. \$13.95 plus \$2.05 P/H. **Precision Software Services**, 4618 Bexley Way, Stone Mountain, GA 30083. 10-70



We save you money

FREE DISK STORAGE BOX with the purchase of 30 high quality disks at only \$34.95. Try 30 disks for a month, if for any reason you don't like them, just return them for a full refund. These disks carry a 5 year limited warranty and come with hub rings and tyvec envelopes at no extra cost. We will pack these disks in your free high impact poly propylene disk storage box that holds up to 60 disks. Order 30 high quality DS/DD disks for only \$34.95. Extra disk storage boxes are only \$9.95. To your total order add \$4 shipping and handling, even if you order 3000 disks and 30 free disk storage boxes your total S&H is still only \$4. Visa, MC, checks and money orders accepted. Phone or mail orders. **Computer Budget Shopper**, 2203 Park Ave. O.V., Cheyenne, WY. 82007 or phone 307-635-2173. 10-73

FREE IBM PC SOFTWARE

Public Domain/User supported programs - Financial, Educational, Utilities, Games, Word Processors, Data bases - For only a distribution charge. Free sample catalog upon request or send \$5 for diskette which includes SDC's popular Name and Address program and a complete catalog of available diskettes. Write **SOFTWARE DISTRIBUTORS CLEAR-**

INGHOUSE, Dept. 0203, 3707 Brangus, Georgetown, TX 78628. **MONEY BACK GUARANTEE**. 6-71

FREE IBM SOFTWARE Financial, Educational, games, and utilities. Pay a small distribution fee. Send for our free catalog. **Morning Star Industry**, PO Box 3095, Ann Arbor, MI 48106. 10-74

FREE! Shop by modem! Call our innovative electronic shopping center, **Fantasy Plaza**, by Modem at (818)840-8066. 11-79

Free IBM PC software: games, business, utilities! 20 page catalog: \$1. **MCSys**, 6415 Shelterwood, Oakland, CA 94611. 9-70

★ ★ ★
GENERAL LEDGER: 'KEEP-Trak' double-entry Accounting System for IBM and Compatibles, \$55 from **THE OTHER GUY'S SOFTWARE**, DEPT J, 875 South Main, Logan, UT 84321, 801-753-7620. MBG. 7-71

★ ★ ★
GREAT SOFTWARE, CHEAP PRICES. Only \$4.95 per disk for the best IBM Freeware available. Invest a stamp. Send for our free catalog. **Public Domain**, 33495 Del Obispo, Suite 160E, Dana Point, California 92629. 11-72

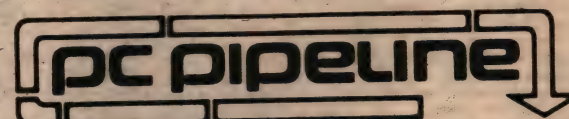
★ ★ ★
IBM COMPATIBLE PERIPHERALS. Color Graphics Card \$100. Printer Card \$30. Monochrome Card \$75. Driver Card \$60. Monochrome Graphics Card \$135. 256K Multifunction Card \$160. 384K Multifunction Card \$220. Free Shipping. Dealer Inquiries Welcome. **Hunter Electronic Inc.**, P.O. Box 1584, Monterey Park, CA 91754. 9-70

IBMPC 256K memory expansion card with 1 serial port configurable as com1 or com2 \$99. **818-716-5220**. 10-70

IBM-PC 9-TRACK TAPE DRIVES

Electrovalue Industrial, a pioneer in providing industry standard 800 BPI 9-track tape drives for the Apple (see article, April Computer Shopper, p. 46) now has a product for the IBM-PC. Exchange data with minis and mainframes. \$1600-\$3000. Call for brochure. **Electrovalue Industrial Inc.**, Box 376-CP, Morris Plains, NJ 07950. 201-267-1117. 7-77

*IBM® PC/XT/AT Compatible



*4164-120/150/200 79¢
*128K-150/200 for AT 549
*256K-150 475
*Teac half height for AT (IBM Color Match) 12900
*20 Mb Hard disk for AT/Rodine 66500
8087-2/-3 9900
80287 for AT 19900
*Tandon/CDC full height drives 10700
*CDC/Teac half height drives 10900
*20 Mb kit for PC/XT — Seagate 69500
*10 Mb Hard Disk System — Seagate 59500
*20-100 Mb Hard Disk Drives Lowest Prices/CALL
*Everex Magic Card 0-384 expansion 17900
*Everex Magic Card w/384K RAM Populated 22499
*Everex Graphic Edge Color Cards 32900
*Add \$3.95 shipping to all orders • Prices subject to change •
P.O.'s on approval • C.O.D. OK • All new, no surplus, no seconds.
QUANTITY DISCOUNTS • Corporate accounts invited.

3310 West Main St., Tampa, FL 33607
In FL and for info, call 813-875-0299

FOR ORDERS ONLY, 800-237-8910



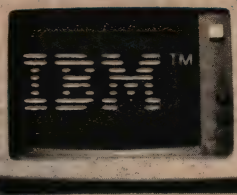
In FL 800-282-4247
TELEX 330690
FAX LINE: 813-876-7194

COMPLETE SYSTEMS

(Optional local warranty service available in most major metro areas)

IBM PC BASE SYSTEM

IBM PC w/256K

Floppy Drive Controller
2 Double Sided Double
Density Disk Drives**\$1,495.02***CALL FOR
LATEST IBM
ANNOUNCEMENTS**IBM PC HARD DISK SYSTEM**

IBM PC w/256K

Floppy Drive Controller
1 Double Sided Double
Density Disk Drive
Half Height 10MB
Disk Subsystem**\$1,749.00***CUSTOM
CONFIGURATIONS
WELCOME**COMPAQ™****PORTABLE HARD DISK SYSTEM**

w256K/1 Floppy/10MB Hard Disk

**\$2,235.00*** w/10MB**\$2,369.00*** w/20MB**DESKPRO SYSTEM WITH TAPE BACKUP**640K CPU/1 Floppy/10MB Hard Disk
10MB Tape Drive/Monitor**\$2,951.94*** w/10 MB**\$3,151.94*** w/20MB

APPLE IIc

MACINTOSH
SYSTEMS**Prices Too Low To Print!!!****64K IBM PC MEMORY EXPANSION KITS**

Quantity Discounts Available.

Guaranteed for Life!

Quantity of 100 Sets
\$3.96* per setSet of 9 Chips
\$5.40***BRAND NAME DISKETTES Guaranteed for Life!**
(Quantity Discounts Available.)

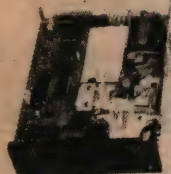
SS/DD For APPLE II & III Box of 10

\$7.95*

DS/DD Box of 10

8.95*

MACINTOSH Box of 10 Includes free Flip & File Case

21.95***1/2 HEIGHT DS/DD DISK DRIVES**

The Network buys direct and makes fantastic deals with manufacturers like MPI/Tandon/CDC/Shugart/Qume/TEAC and others to bring you fantastic prices on Name Brand drives for your PC/AT/XT/jr/or Compatible.

\$69.00*

Quantity Discounts Available.

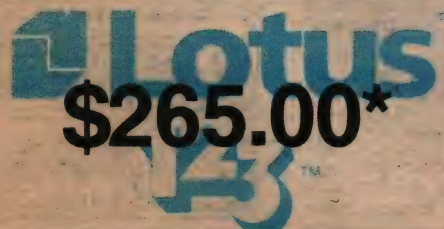
INTERNAL PC HARD DISK

Low Power/Automatic Boot. Works on standard PC's and Compatibles. Includes drive/controller/cables/mounting hardware and instructions.

Full one year warranty!

**10MB**
\$330.00***20MB**
\$420.00*

Quantity Discounts Available.

**\$265.00*****MultiMate™**Professional
Word Processor**\$200.00******Members pay 8% above this wholesale price plus shipping.****CALL TOLL FREE 1-800-621-S-A-V-E** (orders and memberships)

In Illinois call (312) 280-0002 Validation code: R0Y5

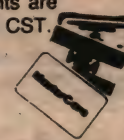
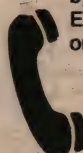
TM & R—Registered trademark of IBM/COMPAQ/APPLE

PC NETWORK**GET THE NETWORK ADVANTAGE!!!****SEE WHY OVER 90,000 HAVE JOINED MAKING US THE NATION'S #1 SOURCE FOR EVERYTHING IN COMPUTING...**

- **Our 600 Page Wholesale Catalog**
Over 20,000 products priced at Wholesale + 8%. Anything you will ever need at a Consistent low price...
- **Quarterly Catalog Updates**
Your Catalog is never obsolete! Keep on top of the newest products and latest price changes.
- **The Printout**
Our newsletter gives you fantastic specials along with unbiased analysis of new products and industry trends.
- **10 Day Returns on any Hardware!**
If you don't like any hardware product—for any reason—return it for a refund.
- **1000 + Title Rental Library**
14 to 30 day rentals on over 1000 different titles. Try before you buy!!
- **Size-Strength and Stability**
The Network has over 100 employees, 35,000 square feet of office and warehouse, inventory valued in excess of \$15,000,000 and is ranked the largest computer product supplier in the Nation!! Our commitment is to serve our customers and our 90% repeat business rate is proof!!

**CALL TOLL FREE
1-800-621-S-A-V-E****Your Membership Validation Number: R0Y5**

You can validate your membership number and, if you wish, place your first money-saving order over the phone by using your VISA, MASTERCARD or AMERICAN EXPRESS. Our knowledgeable service consultants are on duty Mon-Fri 8 AM to 7 PM, SAT 9 AM to 5 PM CST.

PERSONAL COMPUTER NETWORK
320 West Ohio
Chicago, Illinois 60610

Call now ... Join the PC NETWORK and start saving today!

PC NETWORK • MEMBERSHIP APPLICATION

YES! Please enroll me as a member in the PC NETWORK™ and rush my catalog featuring thousands of computer products, all at just 8% above DEALER WHOLESALE PRICES. I will also periodically receive "THE PRINTOUT", a special up-date on merchandise at prices BELOW even those in my wholesale catalog, and all the other exclusive, money-saving services available to Members.

OY5 ☐

I am under no obligation to buy anything. My complete satisfaction is guaranteed. Please check (✓) all boxes that apply:

- | | |
|--|---|
| Basic Membership
With 14 Days Rental
<input type="checkbox"/> One-year membership for \$8
<input type="checkbox"/> Two-year membership for \$15 (SAVE \$1)
<input type="checkbox"/> Business Software Rental Library for \$25 add'l. per year—with 14 day rentals
<input type="checkbox"/> Games Software Rental Library for \$10 add'l. per year | Special V.I.P. Membership
With 30 Days Rental
<input type="checkbox"/> One-year membership for \$15
<input type="checkbox"/> Two-year membership for \$25 (SAVE \$5)
<input type="checkbox"/> BOTH Business and Game Software Rental Libraries for \$30 add'l. per year—with 30 day rentals
*VIP members receive advance notice on limited quantity merchandise specials |
|--|---|

☐ Bill my credit card: ☐ VISA ☐ MasterCard ☐ American ExpressAccount Number: Exp. mo. year☐ Check or money order enclosed for \$ Name Address Apt. No. City State Zip Telephone () My computer(s) is: ☐ IBM PC ☐ IBM-XT ☐ IBM-AT ☐ Apple II
☐ Macintosh ☐ Other Signature
(Signature required to validate membership)

Copyright © 1985, PC NETWORK, INC.

IBM PC PUBLIC DOMAIN SOFTWARE

NEW PRICES - PC-SIG volumes 1-300 only \$3.50 each.
Directory disk - Explains all files on our disks \$3.50 each
Volume sample pack PC-WRITE, PC-FILE, PC-CALC, Games and Utilities \$15.00
Unprotect popular software (2 disks) \$7.00
Financial applications (4 disks) \$12.00
Programming languages (5 disks) \$15.00
Business applications (4 disks) \$12.00
Arcade quality games (4 disks) \$12.00
Utilities (4 disks) \$12.00
Printed catalog - summary of all our disks \$1.00 (free with order).
Please add \$4.00 shipping and handling on disk orders. Send check or money order (US Funds) to our new address: THE COMPUTER ROOM, P.O. Box 1596, Gordonsville, Va. 22942.

IBM PC SOFTWARE

Business/Professional packages now at 70% to 95% off.
Closeout bargains galore!!
ATI Training.....75/15.
Advanced DB Master.....595/150.
Condor III.....650/195.
Farm Management Sys.....400-1000/50.
Megawriter or Speller.....99.95/20.
PFS: Graph.....140/42
TIM IV Latest.....495/148
TK! Solver Packs.....100/10
Hundreds of titles! Call or write for list.
Mark Goldstein, P. O. Box 825, Tempe, Az. 85281, (602)437-1767 (eves.), or Gloria Nelson (602)831-5666.

IBM-PC SOFTWARE CHEAP!! Send for your catalog of game, home management, business, utility, and educational software available and you will also receive a disk utility program listing free along with details on how to make money at home with your IBM-PC. Send to: **PACEWARE, INC., Box 64-A, Pompano Beach, FL 33074.**

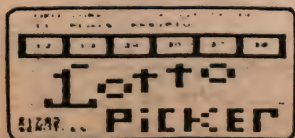
IBM PUBLIC DOMAIN
300 VOLUMES-RENT AND COPY for \$1 each or we will copy for you! \$3 SSDD volume, \$6 DSDD. Sampler disk \$5 (20 files). Send LSASE for info (Specify computer): Futuresystems, Box 3040(C), Vista, CA 92083

IBM SOFTWARE FROM \$10/DISK
1,000's of IBM & ZBM compatible software (this is not Public Domain software), free catalog.

SOFTCITY
642 PARK ST. W.
WINDSOR, ONTARIO
CANADA N9A-5V6
1-(519)255-9812. 11-75

Image processing package for IBM PC. Fast programs for convolution, shading correction, histograms, subtraction, pseudocolor display, etc. Includes test images. \$40. High-quality computer picture package for MX-80 \$5.95. minimum system: 128K, color card and 1 disk drive. Call or send for details. **419-382-0079. IMTEK, 1460 Eastgate Rd., Toledo, OH 43614.**

Interface IBM Electronic 75 Typewriter to IBM PC parallel port \$150 plus shipping. Letter Quality printing and typewriter. **Bill Westheimer 212-431-6360. 11-71**



MILLION \$\$ JACKPOTS! LOTTO! PICK-4! Your T199 or IBM-PC can unlock the winning combinations for you! Every U.S. & Canadian game included! Expandable! **\$35. RIDGE, 170 Broadway, #201-CS, New York, NY 10038. 718-833-6335. Free Catalog. 6-71**

BASIC PRO FOOTBALL ANALYST

Your T199 or IBM-PC uncovers hidden Overlays in the betting line for NFL games. Easy, requires only 5 minutes a week. Pays for itself. \$35. RIDGE, 170 Broadway, #201-CS, New York, NY 10038. 718-833-6335. Free Catalog SASE. 6-71

Let The Iching guide you through your life! The ancient Chinese iching is used by millions of people to advise them daily in making decisions. This computer program is available for the IBM PC computer. For further information, or send \$19.95 to **Danick Software, 4634 Interboro Avenue, Pittsburgh, PA 15207.** Let the Iching help you! **11-71**

MAKE MONEY, gain recognition. Have you written a good engineering or educational program for IBM PC? Send stamped envelope for information. **Data Carrier Corporation, 3704 1/2 Foothill, Lacrescenta, CA 91214. 10-74**

MICRO-CAP, circuit analysis package; AC, DC, transient. Draw schematics \$300. PP. 305-281-1425, 305-356-4268. 8-70

MODEM IDEA 1200 BAUD INTERNAL for IBM PC, compatible. Totally Hayes compatible, in box with manual, software, warranty and phone cable. List \$595, selling at cost \$190. **James 305-763-2748. 10-70**

NEC 8850 letter quality printer \$1000. This printer is in **ABSOLUTELY MINT** condition, less than two weeks old. Price **INCLUDES 6 thimbles AND NEC cut sheet guide.** This equipment sells for over \$1800. Shipping included. Also have some other equipment for sale. Telephone **Ed Schneider, (516)735-2827. 28 Orchid Road, Levittown, NY 11756.**

NEW! NEW! Calculator II. Developed for IBM PC and PCjr. Eighty entries are displayed on screen. Printer can be selected for print tape. Eight arithmetic functions and four memory functions. Optionally converts the numeric keypad to standard calculator keypad allowing touch method entry. Order Now. Only \$9.95. Add \$15.00 for basic source code. Computer Customware, 3911 Fain Court, Montgomery, AL 36109. Send for catalog of discounted IBM software and receive a **FREE Space Shuttlecolor photograph. 10-71**

OKIDATA GRAPHICS Printing for IBM-PC. Print graphic screens from disk or directly from the screen. For ML 92, 93 and 84 Step-2, **NOT** equipped with IBM Plug-N-Play. \$29.95 plus \$3 s/h. **K-QUAL Systems Consulting, 71 Orchard Ave., Staten Island, NY 10312. 10-71**

PGS Model HX-12 RGB color monitor. Never used. With original shipping carton and warranty card, \$395 or best offer. **(805)962-6577.**

GREYHOUND RACE, ANALYSIS, PREDICTION, AND ENTRY SYSTEM (GRAPES). From Race and Result entry through multi-factor user controlled prediction, the best TRIFECTA tool available. Has successfully predicted 60% of Trifectas. Can be tuned for quinella, perfecta, or trifecta boxing. Requires 128K IBM/PC (DOS 2.x) DS/DD diskettes, Color or Monochrome monitor, and matrix printer. To order send \$195 to **Brick Predicts, 1962 Carthage Road, Tucker, Georgia 30084. 10-74**

Printer Control Utility. ShareNET™ runs under DOS2.0, DOS2.1. \$80. Interface West, P.O. Box 90609, Santa Barbara, CA 93190-0609. 6-70

REFER
Saves you hours programming. Processes any language (ASM, Basic, C, Cobol, Pascal, Etc.). Pretty prints pro-

gram source. Cross-reference concurrently: variables, values, keywords, line numbers, and/or labels. Fast and flexible utility. Source code & examples incl. only \$39. **James Halstead & Assoc. 1551 Plainfield, Joliet, IL 60435 (815)725-0346. 10-71**

RENT \$20/MONTH visicalc, multiplan, dbase, lotus, ultimate, cobol, pascal, fortran, pl/i, c compiler, games, chess, sargon, frogger, crossfire, flight simulator. **JVC Computer, 142-15 Cherry Ave., Flushing, NY 11355. 9-70**

RENTAL MANAGEMENT, small business and utility monitoring programs our specialty. IBM-Commodore only. **Fabtronics, 51 Quarry St. Brockport, NY 14420. 11-75**

TERMINAL EMULATOR software for DEC VT100/102/52 + others for just \$49. **BASIC WINDOWS** turn Basic programs into state of the art for just \$49. **CON-SOLX REMOTE** computer operation of PC/DOS via modem for just \$69. **DATA ENCRYPTION** software uses government approved DES algorithm and works with any communications software package thru any mainframe service for \$59. **818-716-5220. Hawkeye Grafix, 23914 Mobile Street, Canoga Park, CA 91307. 10-70**

User-supported spelling checker for IBM PC and compatibles. \$5.00 or diskette with mailer and return postage for a copy, plus \$15.00 if you want to become a registered user. **Roger Egeberg, P. O. Box 65, Argusville, ND 58005. 10-70**

WANTED - Software for the IBM PC. Would like to trade on any reasonable basis; you name it. Send your list and ask for mine. **Ray, 20295 Anita Ave., #6, Castro Valley, CA 94546.**

WIZZARDZ & WAR LORDZ. At last - a new challenge! Lead your party of 6 adventurers thru the depths of a 15 level dungeon in 3-D graphics! Can they defeat in mortal combat the dreaded VILGAR, and his henchmen? W&W gives new meaning to the word adventure. If you dare... \$49.95 \$2 P/H IN 5% tax, IBM/PC & compatibles 128K, DOS. Dealers inquire. **Ram-Tek Co., 6752 (D) Covington Crk. Trl., Fort Wayne, IN 46804. 219/432-2455. 10-72**

jrWARE HOLIDAY OFFER
PCjr OWNERS. Order the jrWARE HOME FINANCE GALLERY of TEN programs to manage your money. We'll include ****FREE** jrWARE's new lottery program plus a **FREE** 10-Disk Library case.** (PCjr/Disk/Cart. Basic required). Send \$14.95 check/money order (PP, CCR) to: **jrWARE SHOPPER OFFER, PO Box 31427, Dayton, OH 45431. 10-71**

(116) NEC COMPUTERS FOR SALE

NEC 8801 System - PC-8801A CPU, PC-8831A dual disk drive, PC-8801A - 16 bit card, JC-1460 DA RGB monitor, CP/M, MS-DOS, WS/MM, Multiplan, all manuals. Like new \$1350. Bob Skell, 230 Grant Rd., E. Wenatchee, WA 98801. 509-884-4631. 11-71

NEC MONITORS
1201 - GREEN COMPOSITE
1205 - AMBER COMPOSITE
30 day guarantee, quantity discounts. Call BCE 202-944-3900.

(116A) NEC COMPUTERS WANTED

Junkman Will Buy! I buy old scrap IC's,

relays, circuit boards, diodes, any mixed junk, gold plated, transistors, connectors, dirty, broken, smashed or useless electronic junk - any amount! 1930 to 1985. Nothing refused! 10 years in business. Pack in boxes and ship UPS. Fast payment! **JUNKMAN, 103 Saratoga St., Lawrence, Mass. 01842. 9-73**

WANTED: Documentation, Schematics, prints for most computers, peripherals. Will pay. Mark, evenings **213-388-7839** or **POB 17892, Los Angeles, CA 90017.**

(116B) NEC SOFTWARE, PERIPHERAL

PC-8001 System Upgrade. Converts PC-8031 to double-sided disk system, greatly increases disk drive speed, silences drives, and has flexibility to read most CP/M single and double-sided disks from other computer systems. **Micronics Technology. 904-897-4218. 9-70**

PUBLIC DOMAIN PC-8000 software. 95 CP/M and NBasic disks, \$4 each. Send SASE for catalog. **Long Island NEC Users Group, 75 Weaving Lane, Wantagh, NY 11793. 7-71**

RAM Disk for PC-8001 and PC-8801. \$260 per 128K. Micronics Technology 904-897-4218. 9-70

(117) OHIO SCIENTIFIC

COMPLETE OPERATING SYSTEM 1-250J Computer with 8" back-up drive, 4-Teletype 925 terminals, 1-83A Okidata printer, 1-82A Okidata receipt printer, 1-UDS 212 modem. Call **904-769-8909. 10-71**

(117A) OHIO SCIENTIFIC COMPUTERS WANTED

(117B) OHIO SCIENTIFIC SOFTWARE, PERIPHERAL

(118) OSBORNE COMPUTERS FOR SALE

(118A) OSBORNE COMPUTERS WANTED

Paying \$5.00 per pound for scrap tantalum capacitors. Any amount, fast payment! Ship: **Sciuto, 103 Saratoga St., Lawrence, Mass. 01842. 9-79**

(118B) OSBORNE SOFTWARE, PERIPHERAL

FREE OSBORNE software available though the Public Domain Users Group. Over 200 programs; games, (adventure, chess) utilities, & specialty (Modem 7, Database). For information send SASE to: **Public Domain Users Group, P.O. Box 1442-C8, Orange Park, FL 32067.**

(120) MS/DOS COMPUTERS FOR SALE

CHAMELEON 256K MS/DOS portable computer, 1 serial 1 parallel port, IBMPc compatible also runs CP/M software \$1269. 818-716-5220. 10-70

DEC RAINBOW 100, 256K, Dual 400K drives, monitor, keyboard, softwares. \$1300. Best offer or trade. 818-334-1185.

EPSON QX-10 with Titan QX-PC 8088 Co-Processor board. 512K RAM plus 128K RAM disk in MSDOS mode. 256K RAM in CP/M mode. Serial and parallel ports. Realtime clock. Also Epson FX-80 printer and cable. Must sell \$1900 obo. Call Dan, 213-679-7507.

SLICER 80186 (6MHz) single board computer card with 256K, 2 serial 1 parallel port, 5+8 floppy port, SASI port, MS/DOS \$669. 818-716-5220. 10-70

TOSHIBA T300 256K MS/DOS computer, color monitor, keyboard, two 640K disk drives Basic and comm software \$1369. 818-716-5220. 10-70

(120A) MS/DOS COMPUTERS WANTED

(120B) MS/DOS PERIPHERALS

MS-DOS COMMANDS on sixty 3x5 Roladex(tm) cards. Indexed with command summary & correct syntax. \$15.95 (PP & MBG). **Brian Lewis, 6423 Caracara St., Sarasota, FL 34241. 10-74**

SANYO AND IBM A11 MS DOS
Thank you for the response on our first offering of WORK FORCE. The results were gratifying. We've been from here to California making WF even better. Our goal is to make a friend. Everyone who orders the Work Force Operational Disk before December 31, gets free updates for a year. It's our way of saying thanks. **WORK FORCE:** Menu driven, Monitor protected, DOS accessible and not copy protected. It's got Two Data Bases, a Calculator Window, Label Baby, Two Clocks, Prints labels and reports, an Electronic Typewriter Emulator, ASCII tables, Interest Computer, The Professor and his Analyst to help you through the financial jungle. It stores. It retrieves. It's got a great phone index and Notepad. Fast and efficient, Work Force is your ideal partner. Great for networking. **WORK FORCE** keeps the desk clear and the Mind uncluttered. Specify system. 34.95 first class postpaid **CYBERSOFT, Drawer 5807, Wynnston Station, Columbus, Ga. 31906-0807. (404)323-2867. 10-71**

(121) KAYPRO COMPUTERS FOR SALE

KAYPRO 10 COMPUTER. 10MB Hard Disk. Includes software. Used little, \$1495. **213-640-9396.**

KAYPRO 16, IBM Compatible, 256K, 10MB hard disk, original softwares. Mint, under manufacturing warranty. \$1800. 818-334-1185.

KAYPRO 16. New version with enhanced keyboard, screen, fan and software. 512K, 1 drive and 10M HD. Used once, with warranty cards, all software and documentation, \$2950. **Kaypro 2000 Laptop, 758K with new software including ramdisk. Used once. All documentation and new software package, \$1950. Kaypro II with all documentation and standard software, extra software included free at your option - \$800. S. Mills, 4615 Orleans Blvd., Jefferson, LA 70121. 504-733-9611. All add-post.**

KAYPRO 4 64K CP/M computer (5 MHz), two 394K disk drives, wordproc, spreadsheet, database and comm software \$869. 818-716-5220. 10-70

(121A) KAYPRO COMPUTERS WANTED

(121B) KAYPRO SOFTWARE PERIPHERALS

43¢/PROGRAM for the best 70 Kaypro public domain programs - including 16 games (adventure, blackjack) 40 utilities, 13 application programs and Modem7 (Kaypro version). Send \$30 for 6 disk set. **Public Domain Users Group, Box 1442-K1, Orangepark, Florida 32067. 10-71**

Continental Home Accountant, \$35, Smartkey II, \$30, Super-Calc II, \$80, Original discs with original manuals. New. Martin Gottlieb, 50 Plaza St. Apt. 12D, Brooklyn, Ny. 11238. 10-70

(123) SANYO COMPUTERS FOR SALE

Ads Accounting Package for MBC-100C (GL-AP-AR-PAY-INV) Complete. Len (212)777-4353.

SANYO 555, 2-SSDD, 256K, Software + Joystick, Manuals, MS-DOS, \$695. Like New. Wayne Boucher, 513-989-1969.

(123A) SANYO COMPUTERS WANTED

(123B) SANYO SOFTWARE, PERIPHERAL

CYBERSOFT'S WORK WINDOW COLLECTION. Q Writer Typewriter Emulator \$14.95. The Professor's Analyst \$24.95. Elapsed Timers and Clock \$10.95. Menu Maker \$10.95. Advertising Campaign Analyzer \$26.95. Daily Receipts Computation \$14.95. Profit Estimator for Small Business \$28.95. Cherry Pie Grapher \$12.95. PF Key Modifier with ASCII Tables \$9.95. Label Baby for all

size labels \$12.95. Biorhythm Computer \$14.95. Q Ware Data Base \$34.95. Sales Commission and Bank Interest \$12.95. Sanyo-IBM Software Compatibility Chart \$5. Deduct 25% on orders of two or more. Send system specifications. Satisfaction guaranteed. Postpaid. Order from **CYBERSOFT INC.**, Drawer 5807, Wynn Station, Columbus, GA 31906-0807. 9-7C



NEW BOOK and disk. "Sanyo MBC 550/555 Beginner and Intermediate Guide." Plus disk with 56 programs. 360+ pages. \$29.95 postpaid USA Fred Blechman, 7217 Bernadine, Canoga Park, CA 91307. 10-71

OPUS

ARE YOU tired of expensive terminal programs which don't work correctly on the Sanyo? Well OPUS is for you. OPUS is a 'State of the art' terminal program written exclusively for the Sanyo 550/555. OPUS features: Auto Logon, Auto Key, Kmodem, DC2/4, manual ASCII capture, full parameter control, disk utilities, on screen menus, windows, etc. OPUS II is for the standard Sanyo. OPUS II is for the Sanyo with Video Board. Both programs with 41 page manual, \$20 PP. **Bob Jack Software**, 8371 White Road, Burbank, OH 44214. 11-72

SANYO 550/555

PUBLIC DOMAIN

70 VOLUMES-RENT and copy for \$1 each or we will copy for you! \$3 SSDD volume, \$6 DSDD. Sampler disk \$5 (15 programs). Send LSASE for info (specify computer). **Futuresystems**, Box 3040(C), Vista, CA 92083.

SANYO MBC-550/555 Public domain software, \$8 per disk. 10 programs per disk. Choose: Utility #1, #2, #3, Adventure, Classics, Games #1. FORTH language \$15. Send \$3 for complete program list. Specify 1.25 or 2.11. **Ken Boone**, 1458 Pixley Dr., Riverdale, GA 30296. 11-71

(125) SINCLAIR COMPUTERS FOR SALE

BUILD YOUR OWN COMPUTER. Sinclair ZX81 computer kits complete with assembly instructions, manual, power supply. Uses UHF CH33. \$49.95 plus \$3 S&H. Visa/MC. Also, write or call for our free 48 page Timex Sinclair Products catalog. **Zebra Systems, Inc.**, 78-06 Jamaica Ave., Woodhaven, NY 11421. 718-296-2385. 10-70

(125A) SINCLAIR COMPUTERS WANTED

(125B) SINCLAIR SOFTWARE PERIPHERAL

2068 BANNERS with your 2040 printer. Includes alphabet, numbers, punctuation. Easy to run. Sample \$2. SASE. Cassette \$14.95 PP. **David Trevor**, Box 46208-T, Phoenix, AZ 85063. 11-78

FASTFILE Professional Data Management System. Best filing program for ZX81/TS1000/1500 or money back. Written in lightning fast 100% machine code. Sorts 1500 5-byte records in 24 seconds, 500 in 3 seconds! Searches through 1500 records in 1 second! Adds up 1500 decimal numbers in under 2 seconds. Built in word processor allows easy data entry. 4 data types stores more information in less memory. Add, change, delete, LPrint, search and query are all as easy as pointing your finger. Several different kinds of files can be in memory at the same time. Complete query system answers "How many...?", "How much...?", or "Which...?" type questions. Includes an example checkbook program which can store 400 checks in 16K! Manual includes information on how to create coupon/refund files, mailing labels, inventory control, address book, appointment scheduler/calendar and your own files. To order send \$19.95 plus \$2 P&H for cassette and manual: **Tom E. Cole**, 1314 Freight #15, Waco, TX 76706. 10-70

FREE CATALOG, Timex Sinclair 1000, 1500, 2068. **Basically Programming**, Dept. C. 2528 W. Olive Avenue, Fullerton, CA 92633. 714-738-0666. 7-75

FREE CATALOG Timex Sinclair Hardware and Software. Books Spectrum programs. **QL** information British

Magazines. **Curry Computer**, 5344 West Banff, Glendale, AZ 85306, 602-978-2902. 9-73

FREE PROGRAMS! Timex-1000/1000-2068/1099-4A/all Commodores, TRS-80's. Send postage stamps! **EZRAEZA**, Box 5222-PCT, San Diego, CA 92105.

From the book, "SIMPLE BASIC GAMES." 44 game, graphic and simple math programs for TIMEX 2068 or 42 for 1000/1500. Each \$14.95 PP on tape. **E.E.C.**, P.O. Box 759, Carnation, WA 98014. 9-70

T-S Horizons

TIMEX SINCLAIR monthly magazine. Nationally known writers. Current information. For all T/S Computers 40 pages, \$15 year. \$2 sample. 2000-W Summit, Portsmouth, Ohio 45662. 10-72

QL CATALOG

SOFTWARE-HARDWARE-BOOKS-MAGS Q-DISK Interfaces, disk drives, monochrome mon. cables, printers, Centronics interfaces. **Software:** ZKUL, WEST, GRAPHQL WD Utility, PASCAL, FORTH, BCPL, Assemblers, Blackjack, QL, Diary, AND MUCH MORE. Write for **FREE CATALOG to: CURRY COMPUTER**, 5344 W. Banff, Glendale, AZ 85306, 1-602-978-2902. 11-75

SPECTRUM ADVENTURES. See Computer Advertisement in Section 192. 11-72

SPEECH SYNTHESIZER. Timex TS2068/1500/1000. ML-Program Multiple vocabularies, flexible memory requirements, very intelligible. No hardware required. Includes '273 words. \$16.95 p.p. **TALKING SPACE 'ZAP' GAME** P/TS2068 complete nothing else needed. Use joystick to destroy enemy craft. \$16.95 p.p. **TAD PAINTER**, Box 166055, Irving, TX 75016. 6-70

TIMEX SINCLAIR monthly magazine. Nationally known writers. Current information. For all T/S computers. 40 pages. \$15 year. \$2.00 sample. **TS HORIZONS**, 2000-W Summit, Portsmouth, Oh. 45662. 10-72

TIMEX/SINCLAIR 1000-16K RAM, books, etc. \$40 (negotiable), used Apple IIe modem wanted. **Jonathan Beams**, 7326 Greenwell Rd., Churubusco, IN 46723.



TIMEX/SINCLAIR USERS... a "real" magazine for the 2068/1000. 36 illustrated pages. Time Designs magazine. Only \$15/year/six issues. Send check/Mo to T.D.M., 29722 Hult Rd., Colton, OR 97017.

TS2068 HARDWARE expansion projects. Many original hardware projects available. Expansion Board, User Cartridge, Eeprom Programmer, Printer Interface, and more! Send SASE for complete list. **THE JOHN OLIGER CO.**, 11601 Whidbey Dr., Cumberland, IN 46229. Coming, the Oliger 2068 Floppy Disc Interface! 9-70

ZX81/TS1000. Build your own 64K RAM pack 8-12K and 12-16K blocks are switchable in/out. Only (14) IC's required - includes (2) double-sided plated through PCBs with schematic and assembly drawings. Fits small Hammond case. Send \$20 to **MRP Technology**, PO Box 340128, Tampa, FL 33694. 813-961-2595 (7-10 PM). 10-71

ZX81/TS1000 16K software. Receive five cassettes containing 4-6 programs. Entertainment, household, business, etc. Only \$15. **ZX81 Club**, PO Box 22446, Baltimore, MD 21203. 11-72

(126) MISCELLANEOUS MICROCOMPUTERS

Color Computer 256K internal upgrade kit \$99.95 + \$3.00 S&H. **J&R**, P.O. Box 2572, Columbia, MD 21045.

EPSON QX-10 System. CPU, keyboard and monitor. Valdocs 2 system and Peachtext 5000 (includes WP, speller, thesaurus, spreadsheet and mail list), \$1250 add-post. **S. Mills**, 4615 Orleans Blvd., Jefferson, LA 70121. 504-733-9611.

EXIDY SORCERER owners, compiling Sorcerer user directory, send name and address to **Cyberco**, Route One, Box 748, Cropwell, AL 35054. 10-74

HZ-89, three drives, many diskettes, 64K RAM, keyboard, CRT, three serial ports, CP/M, HDOS, PASCAL, audio tutorial, manuals, working. (I bought Z-100!) \$1,280 (half "A&T" hardware price, software free!) or BO within 30 days. **KIM-1**, documentation \$75; **SYM-1**, documentation, \$150. Two good SSDD 8" FDD's, Shugart-compatible (Remex 2000's, I bought DSDD 4000's!) \$125 each. Dual 5 1/4" SS North Star FDD's, power supply, original wooden cabinet. \$300. Tektronix 545B 35MHz scope, cart, dualtrace CA plugin, manual. Good condition. \$275. **Hallicrafters S-82**, manual, \$10; **S-85 ASIS**, manual, \$30; **5V 16A DC NCR PS**, \$50. Prices, shipping negotiable. **Calhoun**, 2001 Dunbar, Manhattan, Kansas (913) 539-4159

KAYPRO II \$650; Sanyo MBC 550-2 \$700. Call **Weber Systems** 216-729-2808. 10-70



LNW80 96K. 1 Drive; RSLevel2; CPM2.2; RS232; Sound; Hires; Pascal; DOS + 3.5; Lotsa Software, books. \$750 add-post. **Barry Erick**, 28 Ridge Street, Dallas, PA 18612. 10-70

Latest SORD IS-11C 80 x 25 LCD Laptop, built-in autodial modem, cassette, 80k RAM, 104k ROM, BASIC, WP - \$1000 703-877-1695

MAXICOM XL 32 USER 160 MEG MPM NETWORK \$14,450!

Maxicom XL multi-user computer. Complete with 160 meg Marksman hard disk, 32 Z80 AP cards, operating system, 30 day guarantee. **BCE** 202-944-3900

Make Offer(s): S-100 (Intercontinental) 8-bit Master, 8-bit Slave, Floppy Disk Controller, Integrand Heavy Duty with power supply, Monitor Dynamics Hard Disk Controller (1013) Rev. D, Half Height Qume 8" DS/DD, Manual for Turbodos, Diablo 1620 (1200 baud KBSR), TI Model 800 Full ASCII 9600 baud, Manual for TI model 800, Seagate 419 (20 meg), Syquest 5 Meg removable Hard Disk (Unused), Syquest 5 Meg removable (as is), Media for Syquest 5 meg. **Al Levy Associates**, Box 71, Hicksville, NY 11802, 516-293-8368. 9-70

Micrographicmicroloop 1100-Pulmonary Function Screener--Computer for Medical Diagnosis-Inquire for more info. **Len** (212)777-4353.

Microvox type and talk (serial or parallel), \$150, QT 12 slot S-100 mainframe (new), \$150, 2 Compupro Interfacer 3 (8 serial, new), \$250 ea, Morrow DJDMA FDC (8" & 5"), soft and hard sector w/CPM), \$250, Morrow Switchboard (2 serial, 4 parallel, Rom, Ram), \$75, North Star DD FDC (5" hard sector w/CPM & NSDOS, 2 prom sets), \$100, North Star 12 slot motherboard (2 serial & 1 parallel), \$15, ADS Noisemaker (w/software), \$50, Measurement Systems DM6400 (64k dram), \$75. Full documentation included. Will accept PSSST board in trade or feel free to make offer. **Carl Camper**, POB 877, Colstrip, MT 59323, (406) 748-3230 11-71

NCR FIRST Step 64K CP/M computer, two 544K disk drives, wordproc, spread sheet and comm software, \$1069. **818-716-5220.** 10-70

OSI Challenger multi-user two 8" floppies two terminals \$2,000, XEROX CP/M network. Keybrook file server with DMA 10 meg complete \$2995. 503-246-5718, **Jack Hamersley**, 10928 SW 49th, Portland OR 97217

Reynolds & Reynolds TC-1000, SS-50 Bus, CP/M Computer with dual 5 1/4" disk, built-in 7" Monitor - as-is, looks operational, \$250. **Len** (212)777-4353.

Televideo 802H, 64K, CP/M, 20MEGHD, Wordstar, DBASEII; two complete systems, excellent condition, \$2,500.00 each. Call **Zach Taylor** 919-633-5106 11-72

UNIX SYSTEM 80 MEG 16 USERS

LIKE NEW! PIXEL 100/AP 32 bit M-68000 (10 MHz) with 30 amp power supply, Pixel terminal, 2 MB RAM, 2 I/O Processor boards, 80 MB hard disk drive, 8 serial, 8 VDU, and 2 parallel ports, 16 MB streamer backup tape drive, Pixel terminal, UNIX operating system version 7 (and 'C') & utilities, Wordprocessing software, Menu Master program, \$200 worth of manuals, YOUR COST \$14,900 (\$22,000 savings below the list price of \$36,709). This computer came straight

from the factory, and we have not used it more than a few hours! Call **Acropolis Computer Systems**, Ada, OK, 405-436-4141

VINTAGE MICROS

WANTED: SCELBI, Apple I, etc. Also Books, Sales Lit, Software. 312-947-9862, **Jack Rubin**, Box 8234, Chicago, IL 60680. 8-72



Wanted Molecular computers Micro60-32 Supermicro 3x multi-user systems, in quantity with application processors.

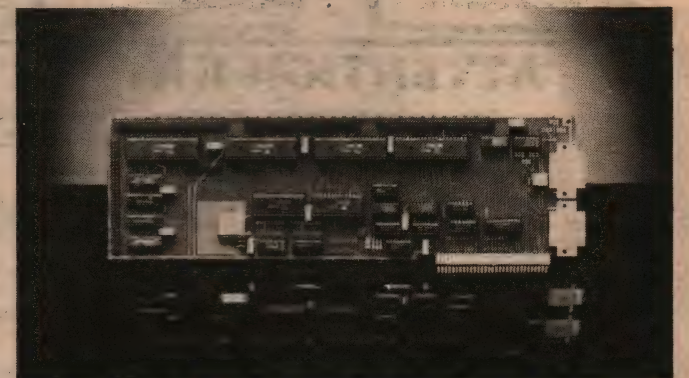
Call (209) 732-6441 ask for operator 50. DataPut Sales, Post Office Box 3188, Visalia, CA 93278 11-72

(127) XEROX COMPUTERS FOR SALE



DIABLO 3200. Good condition. Best offer, must sacrifice. **Sunset Road Medical Associates**, 215 Sunset Road, Willingboro, New Jersey 08046.

HOW TO PUT YOUR IBM-PC TO WORK IN THE "REAL-WORLD" (First, Buy This Board!)



96 TTL I/O PORTS FOR THE IBM-PC

The Model 1018 Multi-I/O Board for the IBM-PC: ICD has packaged 96 Input-Output Channels onto a single full-length board for the IBM-PC, XT, and buss-compatibles. This high-density TTL-level I/O board can be used to monitor switches and sensors, control relays, motors, even drive low-current LEDs directly! Simply instruct the on-board PIO (parallel input-output) circuitry to sense or output +5 Volt signals in groups of 8 (making 12 groups possible). An additional 48 TTL Inputs and 2 RS-232C Serial Ports provide unprecedented capability on a single board! Optional 64-pin header connectors with attached ribbon cables will plug directly onto the board, available in 4, 10, and 20-foot lengths. Ideal for many OEM, VAR, and computer enthusiast uses in process monitoring and control, energy management, security, home control, and other "Real-World" applications! Includes sample application software listings for the PC, pinout diagrams, and handy "channel assignment" sheets.

- 12 Eight-Bit Parallel TTL-Level I/O Ports Utilizing 8255 PIO Devices
- 4 Eight-Bit Parallel TTL-Level Input-Only Ports
- 2 RS-232C Serial I/O Ports with Jumper-Selectable Baud Rates (110 Baud to 19.2K Baud)
- Crystal-Controlled Communications Timing
- High-Current Serial Output Option
- Hardware-Selectable Base Address (allows multiple board use)
- Occupies One Full-Length IBM-PC Expansion Slot

1018 PC-I/O BOARD \$495.00. Now available through ICD Products Dealers and Representatives Worldwide.

More ICD "Real-World" Computer Interfacing Products:

- RTS-1** Remote Temperature Sensor
- RLS-1** Remote Light Sensor
- RMS-1** Remote Moisture Sensor
- RSDA-1** Remote Smoke Detector Alarm
- HVAC-1** Remote HVAC Controller Module
- ADV Series** Remote-Controlled Air Duct Valves
- S-100** Analog I/O and Calendar/Clock Boards

FOR MORE INFORMATION: SIMPLY MAIL THIS AD WITH YOUR BUSINESS CARD OR PRINTED NAME & ADDRESS TO ICD AT THE ADDRESS GIVEN BELOW, OR CALL (818) 889-3179, M-F, 8AM to 5PM, PST.

SPECIAL OFFER! PURCHASE ICD'S POPULAR BOOK, "HOW-TO" APPLICATION NOTES, AT 25% OFF THE COVER PRICE — SIMPLY ENCLOSE THIS AD & CHECK OR MONEY ORDER FOR \$18.75 + \$2.00 S&H (ALASKA & HAWAII \$3.50 S&H). ALLOW 2-4 WEEKS FOR DELIVERY.

Industrial Computer Designs INDUSTRIAL COMPUTER DESIGNS, INC.

31264 La Baya Drive
Westlake Village, CA 91362
(818) 889-3179

DEALER INQUIRIES INVITED

KEYBOARD & ENCLOSURE

XEROX 820 COMPATIBLE

80-key X-Y scanned microprocessor controlled ASCII encoder kit. ROM source code supplied so user can change codes. Size 17x8.5x3.10 special function keys give 30 function codes, has numeric pad and cursor control keys.

New, with schematics, weight 8 lbs.

KEYBOARD, ENCODER KIT AND

ENCLOSURE \$60.00

UN-REGULATED SUPPLY

Un-Regulated supply, 6 outputs: 5V @ 10A, 30V @ 2A, 18V @ 1.5A, 14V @ 0.5A. Includes transformer, capacitors, rectifiers & heatinks. Add 3 terminal regulators for cheap power. Removed from used equipment.

UN-REG POWER SUPPLY (25A) \$10.00

REGULATED POWER SUPPLY

Regulated power supply, 6 outputs: 5V @ 4A, 12V @ 0.2A, 24V @ 1.2A, 24V @ 0.2A, 15V @ 2.5A, 14V @ 3.7A, 10V @ 1.0A. Will run single board computer and 5" or 8" drives.

REGULATED POWER SUPPLY \$25.00

ARKON ENGINEERING

PO BOX 1390
Palm Bay, FL 32905
(305) 777-7254 evenings.

TERMS: Prepaid or UPS COD (CASH OR CERTIFIED CHECKS ONLY)

Xerox 820-I, 5 1/4" Drives, CPM, wordstar, supercalc, Like New \$350. Len (212)777-4353.

(127A) XEROX COMPUTERS WANTED

XEROX 820-11 5 1/4" or 8". Bernard Sens. 1015 Cedar Dr., Oxford, Ohio 45056 513-961-7312. 10-71

(127B) XEROX SOFTWARE, PERIPHERAL

—BIG BOARD BUILDERS—
KEYBOARDS \$35 - See "APPLE BUILDER KEYBOARD" ad in category 108 for a super, full ASCII, 83 key keyboard which also works great with the Big Board/82C series computers. Thanks, **Electrovalue Industrial.** 12-70

LOOKING FOR a total accounting software package to run in a Xerox 820 8" floppy S/D CPM. Contact Robert

Messier, PO Box 701, Valrico, FL 33594.

WANTED INFO on keyboard general instrument S700 series. Has two 40pin IC's and several 14 or 16 pin ICs. Any info appreciated. Pay reasonable price. Glenn Blizard, 614 Hollywood Ave., Suffolk, VA 23434. 10-70

(128) MISC. MICRO, SOFTWARE, PERIPH.

1000's of **FREE SOFTWARE** programs for over 80 computer formats including IBM, CPM & COMMODORE from the Public Domain Users Group. Over 4400 members worldwide. For information send SASE to: Public Domain Users Group, 1442-C2 Orange Park, FL 32067. 11-71

Public Domain Software from The Users Groups! Thousands of useful programs available to run on your computer! Send a SASE or phone 619-727-1015. National Public Domain, 1533 Avonhill, Vista, CA 92083. 6-70

dBASE III/III, WordStar letterhead logo

graphics strategies with most printers. Single or multipage report headers. Source code, documentation, \$7.95. Harvey Gardner, PO Box 340, Huntington, NY 11743. 11-74

(129) S-100 COMPUTERS

(1) Ithaca InterSystems DPS-1 Mainframe \$350, (2) Octagon 8 MHz 8088/286 w/5 1/4" & 8" disk controller 2 serial ports real time clock CCPM V3.1 lots of software \$350.00, Call Bruce 1-201-752-5110 (day 1-201-233-3185 (eve) 10-70

4 MEG IMSAI mainframe. 20-slot Wunderbuss. 25-amp power supply. CompuPrc active terminator, \$175. CCS 2810 Z-8C CPU \$125. 216-248-1762.

ACTION DISCOVERY Multiprocessor six-user system. Runs CPM 2.2 at 4 MHz; includes 2 Qume DT-8's with separate enclosure, and Honeywell-Bull 20 meg. hard disk with 10 meg. removable. All manuals, software, etc. included. You

supply RS-232 terminals and integrate. \$1500 plus freight. Dave, 213-204-3646. 11-71

ADVANCED DIGITAL Super Six with HD1001 hard disk controller and two Shugart 5 Meg. drives, 10 slot paradynamics rack mount unit, \$1000 for entire system or will sell separate. 602-838-7106 Phoenix, AZ.

CCS COMPUTER: 2810A Z80 board, 2422 disk controller 8&S.25, 2065 64k d-ram, 2718 I/O: one parallel/two serial, 2501 12 slot motherboard, two 8" SS/DD drives, case, some software included (of your choosing): \$1200 or best offer. Jon Higbee, 1611 East 5895 South, Salt Lake City, Utah 84121-1899. 801-278-4249.

CHROMEMCO BOARDS ZPU, 64KZ, Dazzler, Quadart, DPU, super prices please call for quotes. CEC, 1745 Adrian Rd., Burlingame, CA 94010. 800-228-3411.

CHROMEMCO BOARDS ZPU, 64KZ, Dazzler, Quadart, DPU, super prices please call for quotes. CEC, 1745 Adrian Rd., Burlingame, CA 94010. 800-228-3411.

COMPUPRO 8086 10Mhz CPU \$350; Interfacer-3 \$280; Interfacer-4 \$165; System Support \$165; 20 Slot Motherboard \$100. All Never Used. Call 813-223-4161. 9-70

COMPUPRO RAM16 64K 8/16 bit addressing two avail., \$200 ea. 313-469-3186. 10-70

COMPUPRO 8/16, 64K RAM, Z80B CPU, SYSSUP, Interfacer 4, 512K Ram Disk, Ventel 300/1200 Baud Modem, H19 Terminal, Dual 8" Floppies, All or part. Cheap. 512-525-8356 10-70

FOR SALE: S-100 Computer System - complete or individual boards - 64K static memory Compupro RAM17, SSM J04, CPU, Video, Vector case and power supply - very reasonable. 301-831-7086.

FOR SALE: S100 bds; Vector Graphic Z80 CPU \$60. Tarbell cassette bd (not working) \$25. 3-8K RAM bds., \$30 ea. 16K RAM bd \$75. Blackbox printer \$60. Z8 computer \$125. Loy Roberts, 405-722-9766.

GOLDI - Recover pure gold from old scrap circuit boards, electronics, etc. Very easy. My book tells how. Send \$25. J. Sciuto, Box 129, Methuen, MASS 01844. 5-75

IMS 8000 TURBO-DOS system: Master and one slave, 24 meg. Winchester, two 8" floppies, one Visual terminal. One year old. Mint. \$4995. Bob 516-921-1465.

Junkman Will Buy! I buy old scrap IC's, relays, circuit boards, diodes, any mixed junk, gold plated, transistors, connectors, dirty, broken, smashed or useless electronic junk - any amount! 1930 to 1985. Nothing refused! 10 years in business. Pack in boxes and ship UPS. Fast payment! **JUNKMAN**, 103 Saratoga St., Lawrence, Mass. 01842. 9-73

MULTI-USER TURBO-DOS SYSTEM Configured, ready to run: two 5" drives, IMS-5000 mainframe, master, disk controller, two user slaves, two Visual terminals, (Additional slaves available), manuals, excellent condition, \$1995. Qume 10/35 New letter-quality printer \$750. (\$600 with system). Bob 516-921-1465.



MUSYS MULTIUSER SYSTEMS. System 1. 5 user with 2-30MB hard disks, 1-1.2 MB floppy, tape back-up and 5-Televideo 925 terminals, \$8,000. System 2. 3 user with 1-16 MB hard disk, 1-1.2 MB floppy, and 3 - Televideo 925 terminals, \$4,500. System 3. 2 user with 1-16 MB hard disk, 1-1.2 MB floppy, and 2-televideo 925 terminals \$3,000. All systems include Turbodos operating systems, communications software, cables and dust covers. Add \$500 for Multiuser dBase and \$300 for T-Maker. **Paragon Computer Corporation**, 203-525-0389. 10-71

Multiuser Computer. 15 slot S-100 mainframe, 2 DS/DD 8" drives, Macrotech MI-286/Z80H CPU, Gifford MS-DOS operating system, CompuPro/Viasyn RAM-I/O, 512K static RAM-22, Interface-4 3-serial & parallel Centronics, System Support 1, real time clock, 512K M-Drive/H, TeleVideo 924 terminal supports 4 virtual screens, Epson MX-80 \$2300. Bill Giffen, 214-492-8031.

SEMI DISK, OK BOARDS. You add memory. 1/2 meg Semi Disk I, \$150. 1 Meg. Semi Disk II, \$250, with software. **Paragon Computer Corporation**, 203-525-0389. 10-71

ATTENTION KAYPRO AND XEROX 820 OWNERS

EMERALD MICROWARE BRINGS YOU THE HARDWARE AND SOFTWARE THAT YOU NEED TO GET THE BEST VERSATILITY AND EFFICIENCY FROM YOUR SINGLE BOARD MICROCOMPUTER, WITH GOOD PRICES AND SUPPORT.

X120 DOUBLE DENSITY CONTROLLER BOARD

Unsurpassed double density operation, designed for easy mounting on the Xerox 820-1 (or BBI). Uses the 2793 double density disk controller.

- Runs any combination of 5 1/4" or 8" disk drives, up to four at a time
- Standard 34 and 50 pin Shugart compatible disk drive connectors on board, as well as returning signals to connector on main board
- On board circuitry handles clock and data separator switching from drive select
- Composite video adaptor on X120 board
- 3 1/2" x 4 1/2" high quality, solder masked, double sided board with manual and schematic
- Designed to work with XPRO or PLUS2 rom sets.

Bare board	\$ 26.00
Board assembled and tested	\$120.00
Board with full kit	\$ 95.00
WD2793 controller chip	\$ 24.00
Hard to find parts set	\$ 12.00

See below for board with rom packages

XPRO ROM SET by Micro Cornucopia

Turns your Xerox 820-1 into a Kaypro compatible with superior speed and versatility.

- Runs 63K system for more available TPA
- Fast video and parallel keyboard drivers
- Auto-boot capability, boots from 8" or 5 1/4"
- Rom monitor functions with menu of options
- Centronics and serial printer drivers included, selectable using IOBYTE
- 98% software compatible with both Xerox 820 and Kaypro
- Automatically selects disk formats for:
Kaypro II - 191K, SSDD, 48TPI, 5 1/4"
Kaypro 4 - 390K, DSDD, 48 TPI, 5 1/4"
Kaypro 8 - 784K, DSQD, 96 TPI, 5 1/4"
Xerox 820-1 - 82K, SSDD, 48TPI, 5 1/4"
IBM 3740 - 241K, SSDD, 8" (standard Xerox 8")
8"SSDD - 596K (same as BB II)
8" DSDD - 1.121M

- True double sided operation
- Can be operated with a terminal for console device
- Includes disk format program, sysgens, CBIOS source, easy install files, manual, and 2716 roms
- Works with X120 board for double density

XPRO Rom Set \$ 49.95

PLUS2 ROM SET by MICROCode Consulting

Turns your Xerox 820-1 or BBI into a Kaypro compatible with superior speed and versatility.

- Boots from 820-1 disk or our advanced BIOS
- Bank selected for efficient use of program memory
- Automatically logs on to 8 and 5 1/4" disks
- Adds inverse and low intensity video capability
- Logical to physical drive mapping
- Has advanced error handling and recovery
- Includes real time clock using existing CTC
- Has Xerox rom monitor commands
- Supports multiple disk formats with utility program
- Includes disk format program, CBIOS source, utility programs, manual, and 2716 roms
- Works with the X120 board for double density

PLUS2 Rom Set \$ 49.95

Board and Rom Set Package Prices:

X120 Board A&T with rom set (specify)	\$160.00
X120 Bare Board with rom set	\$ 72.00
X120 Full Kit with rom set	\$139.95

Call for other package prices

Include \$3.00 for Shipping and Handling (under 2 pounds); \$6.00 for COD; 3% for Bankcards. Add \$3.00 for each disk drive or cabinet. Phone hours - 8:30am to 5:00pm weekdays; 10:00pm to 7:00am by modem (same phone number) seven days a week.

UNIFORM by Micro Solutions

The solution to the diskette incompatibility problem. This program allows files to be run or transferred back and forth between close to one hundred different computer formats, including 96 TPI-5 1/4", and 8" diskettes. Lists computers by name, with no special technical knowledge required. Transfers between CPM, MS-DOS, PC-DOS, and TRS-DOS formats. Versions available from stock for Kaypro, Xerox 820-II, and Xerox 820-1 with XPRO rom set; others available

Uniform \$ 64.95

QP/M by MICROCode Consulting

At last an inexpensive replacement for CPM/M, with full CPM compatibility, and many enhancements. Includes 5 new system calls, and 9 new transient commands including time/date stamping of files, backup utility, and menu driven configure program. Runs on Z80 systems, in the same space as CPM/M 2.2.

Available as bootable disk (does not require CPM/M) for the Xerox 820-I, 820-II, or the Xerox 820-1 with XPRO rom set.

QP/M with BIOS for PLUS2 or XPRO rom	\$ 64.95
QP/M with BIOS for Xerox 820-I or 820-II	\$ 80.00
QP/M without BIOS (not bootable)	\$ 60.00

SEMIDISK 2 MBYTE DISK EMULATOR by SemiDisk Systems

Tired of waiting? The SemiDisk ram based disk emulator board is the single, most significant speed improvement that you can make to your system. And it's BIG enough to get both your program AND your working files on the SemiDisk at the same time, no waiting for one or the other to be accessed from a disk drive. Print buffer software included. Low power consumption - picks up its power directly from your system, with an optional battery backup package available. Works on Xerox 820, Kaypro, or any other Z80 based system.

2MB SemiDisk Board-assembled	\$995.00
Optional battery backup unit	\$150.00

PANASONIC HALF HEIGHT DISK DRIVES

The finest new half height, 5 1/4" disk drives. Fast, reliable, with lower power consumption.

Panasonic JA551 - DSDD, 48 TPI	\$ 99.00
Panasonic JA561 - DSQD, 96 TPI	\$114.00

Include \$3.00 each for shipping

SmarTEAM 103/212A MODEM

Auto-answer, auto-dial 300/1200 baud with full Hays compatibility. Metal cabinet, status LEDs, speaker with volume control, and phone cable \$229.00

XEROX CABINETS AND ACCESSORIES

Our stock changes frequently due to quantities and availability of these items, please call to check stock and get shipping charges before ordering.

Xerox standard computer cabinet w/monitor frame	\$ 95.00
Xerox high profile keyboard w/cabinet - new	\$ 65.00
Xerox 5 1/4" disk drive cabinet	\$ 18.00
Xerox 5 1/4" disk drive cable	\$ 12.00
Power connectors for 820 board (pc) or PS (cable)	\$ 2.50
Switching power supply for 8" drives	\$ 69.00
Xerox 820-I boards, working	\$ 95.00
Parallel ASCII keyboard (not Xerox) made by Keytronic, typewriter keys only	\$ 25.00



P.O. BOX 6118 ALOHA, OR 97007 (503) 642-1860

ONE MILLION DOLLAR ZENITH SOFTWARE SALE

SUDDENLY HEATH/ZENITH SOFTWARE IS MORE THAN A BARGAIN. HERE'S WHY...

PAYLOAD COMPUTER SERVICES has just purchased over one million dollars of ZENITH SOFTWARE from one of America's largest Corporations. With buying power like this, who else but PAYLOAD saves you so much money? See your Heath/Zenith Catalog for details on each item. All packages shipped complete, factory sealed with manuals and registration cards. MAIL or PHONE your order today and expect prompt service. MASTERCARD and VISA gladly accepted.

ZENITH SOFTWARE FOR THE Z-100 SERIES COMPUTERS

PART NUMBER	DESCRIPTION	LIST PRICE	SALE PRICE
MP-463-7	WordStar v3.21	\$399	\$65
MP-463-3	MailMerge for WordStar v3.21	\$135	\$28
MP-463-10	WordStar v3.3	\$299	\$145
MP-463-11	MailMerge for WordStar v3.3	\$249	\$85
MP-463-6	SpellStar for WordStar v3.3	\$149	\$55
MS-463-1	Z-Basic (16 bit) interpreter	\$175	\$60
MS-463-7	Multiplan	\$195	\$60
MS-253-1	Microsoft BASIC-80 (8-bit)	\$175	\$45
OS-53-2	CP/M-85 (8 bit)	\$150	\$45
OS-63-2	CPM-86	\$250	\$60
OS-63-4	Z-DOS	\$150	\$35
CB-463-7	GPS Computerized Phone System.	\$40	\$20
CB-463-9	PECON Peachtree to Condor	\$99	\$35
CB-463-11	Z-Chart	\$150	\$22
CD-463-10	Condor Relational Data Base	\$650	\$145
CD-463-2	Condor File Manager	\$299	\$82
ES-463-1	Microstat	\$249	\$60
RS-463-1	Peachtree General Ledger	\$399	\$94
RS-463-2	Peachtree Accounts Receivable	\$399	\$94
RS-463-3	Peachtree Accounts Payable	\$399	\$94
RS-463-5	Peachtree Inventory Management	\$499	\$99
RS-463-6	Peachtree Sales Invoicing	\$299	\$82
RS-463-75	PeachText 5000	\$395	\$77
SC-463-1	SuperCalc	\$195	\$60
TA-463-1	ZDS Teacher Program	\$295	\$75
TA-463-2	ZDS Student Program	\$100	\$30
WI-463-1	Remote Batch Terminal Emulator	\$899	\$155
PO-463-1	3270 IBM Emulator	\$650	\$145

ZENITH SOFTWARE FOR THE Z-150/160 SERIES COMPUTERS

PART NUMBER	DESCRIPTION	LIST PRICE	SALE PRICE
OS-63-50	MS-DOS v1.25/2.0	\$150	\$70
MS-5063-7	Multiplan	\$195	\$85
MS-5063-9	Microsoft WORD	\$375	\$100
RS-463-75	PeachText 5000	\$395	\$77
BP-5063-1	BPI General Accounting	\$595	\$260
BP-5063-2	BPI Accounts Receivable	\$595	\$245
BP-5063-3	BPI Accounts Payable	\$595	\$245
BP-5063-4	BPI Payroll	\$595	\$245
BP-5063-5	BPI Inventory	\$795	\$280
BP-5063-6	BPI Job Costing	\$795	\$280
BP-5063-71	BPI Series Self-Training	\$69	\$35
BP-5063-8	BPI Personal Accounting	\$195	\$85

ZENITH SOFTWARE FOR THE H/Z-89 SERIES COMPUTERS

PART NUMBER	DESCRIPTION	LIST PRICE	SALE PRICE
HSC-837-1	SuperCalc	\$195	\$60
HES-837-1	Microstat	\$249	\$60
HMP-837-1	SuperSort	\$195	\$60
HMP-837-2	WordStar v2.26	\$395	\$94
HMP-837-3	MailMerge for WordStar	\$135	\$45
HMP-837-4	DataStar	\$295	\$60
HRS-837-9	Peachtree MagicWand	\$295	\$60
HCP-837-1	Pearl #3 Program Generator	\$450	\$94

*** ZENITH IBM COMPATIBLE *** *** COMPUTERS, Z-150 SERIES ***

ZF-151-21. One 360K floppy disk drive, 128K RAM, col-

or ready. Retail \$2199, Payload \$1752
ZF-151-52. As above with two floppy disk drives and 320K RAM. Retail \$2799, Payload \$2147
ZW-151-52. As above but with 10.6 MEG Winchester Drive and one floppy disk drive. Retail \$4799. Payload \$3320
ZFA-161-21 PORTABLE. 9" Amber screen, about 33 lbs. All other features same as ZF-151-21. Retail \$2399, Payload \$1883
ZF-161-52 PORTABLE. 9" Amber screen, two 360K disk drives. All other features same as ZF-151-52. Retail \$2999, Payload \$2280

*** PAYLOAD ENHANCED *** *** ZENITH COMPUTERS ***

Your very best buy in an IBM Compatible. We start with the ZF-151-21 and enhance into a serious computing machine. A PAYLOAD exclusive at prices so low you will wonder how we do it.

PE-151-320-W10 COMPUTER. One Winchester 10.5 MEG Drive, One 360K floppy disk drive, 320K RAM, IBM bus with 3 open slots, color ready \$2554
PE-151-704-W10 COMPUTER. Same as above but with an incredible 704K RAM installed. Still 3 open IBM slots \$2748
PE-151-320-W20 COMPUTER. One Winchester 20 MEG (formatted) Drive, one 360K floppy disk drive, 320K RAM, IBM bus with 3 open slots, color ready \$2944
PE-151-704-W21 COMPUTER. Same as above but with an incredible 704K RAM installed. An unbelievable bargain only from PAYLOAD \$3096

*** ZENITH LOW PROFILE *** *** COMPUTERS, Z-100 SERIES ***

ZF-101-31. Single 320K disk drive, 192K RAM. Color RAM set required for color. Retail \$3029. Payload \$2479
ZF-111-22. Two 320K disk drives, color graphics, 128K RAM. Retail \$3499, Payload \$2807
ZW-111-32. Internal 11 MEG Winchester hard disk drive, one 320K disk drive, color graphics, 192K RAM. Retail \$5499, Payload \$4172

*** ZENITH ALL-IN-ONE-COMPUTERS *** *** Z-100 SERIES ***

ZF-121-32. Two 320K disk drives, 192K RAM, Monitor built in. Retail \$3729, Payload \$2905
ZW-121-32. Internal 11 MEG Winchester hard disk drive, one 320K disk drive, 192K RAM, monitor built in. Retail \$5599, Payload \$4228

*** ZENITH MONITORS ***

ZVM-136 Long Persistence 13" high res \$656
ZVM-135 Color 13" High Res., RGB & Composite \$493
ZVM-133 Color 13" High Res., RGB only \$447
CV-2562 Color 25" High Res., RGB & composite \$726
ZVM-122 Amber 12" list \$170
ZVM-122A Amber non-glare 12" \$119
ZVM-123 Green 12" list \$150
ZVM-123A Green non-glare 12" \$119

*** UPGRADE ACCESSORIES FOR *** *** Z-150/160 SERIES COMPUTERS ***

MEMORY UPGRADE KITS with easy to follow instructions.
MEMORY KIT #150-64-9. Each kit will increase memory by 64K up to 320K. Only the finest 150 NS RAM chips included \$18.90
MEMORY KIT #150-256-18. Includes a ZPAL chip which allows use of the new 256K RAM chips included (18

pieces 256K 150 ns RAM chips). Kit increases 128K memory to 640K. If you have over 128K now, will go up to 704K. All plus into your single Zenith Memory Board. Unbelievable but true \$144
Winchester Hard Disk Drive Internal Set-Up. Includes Winchester drive, controller/interface card, cables and all hardware. With 10.5 MEG (formatted) drive \$802.
With 20.0 MEG (formatted) drive \$1139
Winchester Hard Disk Drive External Set-Up. Includes Winchester drive, controller/interface card, power supply and case with fan. With 10.5 MEG (formatted) drive \$1049.
With 20.0 MEG (formatted) drive \$1386
Z-316 8087 Numeric Co-processor. Speeds and improves numeric processing. Retail \$225. Payload price \$129
Z-319 High Resolution Video Card. Emulates Z-100 series computers 640 by 225 pixel-mapped graphics. Retail \$499. Payload price \$442
SECOND INTERNAL DISK DRIVE. Includes instructions and all mounting hardware. If you have a Shugart drive (has rotating lever latch) \$147.
If your drive is a Mit-subishi (has flat up/down latch) \$157

*** UPGRADE ACCESSORIES *** *** FOR Z-100 SERIES COMPUTERS ***

COLOR GRAPHICS UPGRADE. All memory chips (16 pieces 150 ns) required to update Z-100 Series computer for color. Installation instructions included. Order Memory Kit #100-64-16 \$37.50 complete
MEMORY UPGRADE. All memory chips (9 pieces 150 ns) required to upgrade from 128K to 192K RAM. Installation instructions included. Order Memory Kit #100-64-9 \$18.90
UCI MEMORY UPGRADE CARD. We recommend this one highly. The board has 72 sockets for eight banks of either 64K or 256K memory chips (Dynamic RAM). Board (no RAM) \$455. Complete with 256K chips installed: 512K for \$545, 1.0 MEG for \$635, 1.5 MEG for \$725, 2.0 MEG for \$815
UCI RAMDRIVE Software \$42.50
UCI RAMSAVER. Maintains power on RAM when computer is off \$168
UCI Z-100 SPEED MODULE. Run your Z-100 Computer at 8.0 MHz. Installs easily with no soldering. Externally switchable between Speed and Normal mode. Five replacement chips are included to insure correct function \$48
Z-216 8087 NUMERIC CO-PROCESSOR. Speeds and improves numeric processing. Retail \$379. Payload price \$325
Winchester Hard Disk Drive External Set-Up. Includes Winchester drive, Zenith interface card, data separator, power supply/case with fan, cables. Computer must have power supply with connector for Winchester controller. With 10.5 MEG (formatted) drive \$1477.
With 20.0 MEG (formatted) drive \$1914
Winchester Hard Disk Drives Internal Set-up. Includes all items above less power supply/case. Computer must have power supply with connector for Winchester controller. With 10.5 MEG (formatted) drive \$1247.
With 20.0 MEG (formatted) drive \$1684

*** UPGRADE ACCESSORIES *** *** FOR H/Z-89 COMPUTERS ***

Magnolia Microsystems Double Density Controller. Soft-sectored disk controller. Supports up to four each 5.25" and 8" disk drives. Complete with cables, installation instructions and CP/M 2.242 \$354
Magnolia Microsystems 128K RAM Board. Add to your 48K H/Z-89 CPU memory for a total of 176K. Includes CP/M Plus (CP/M 3.0), a \$350 value, at no additional

charge. Payload price \$446
Magnolia Microsystems Memory Upgrade Card. Installs in your H-89 to increase memory from 48K to 64K. Payload price \$68.50
Magnolia Microsystems SASI Bus I/O. Use to connect Winchester disk drives to your H-89. Also has three Serial Ports. Software included. Payload \$225
Winchester Hard Disk Drive Set-Up. Includes Hard Disk Drive, SASI Interface (above), power supply and case with fan, cables, Hard Disk controller and CP/M software. \$1122 for 10.5 MEG (formatted) set-up or for 20.0 MEG set-up \$1559

INTERNAL DUAL DRIVE SETUPS FOR THE H/Z-89 COMPUTER

Includes two half height double sided disk drives and all hardware and connectors required to mount inside your H-89. Steel mounting shield/case included.
NATIONAL JA551-2 Set-up, 48 TPI, 6MS seek, 320K disks \$299
MITSUBISHI 4851 Setup, 48 TPI, 6 MS seek, 320K disk \$312
MITSUBISHI 4853 Setup, 96 TPI, 3 MS Seek, 640K disks \$319

HALF HEIGHT DISK DRIVES

TANDON TM848-2E 8" DS, DD, 48TPI \$375
MITSUBISHI M2896 8" DS, DD, 48TPI \$395
NATIONAL JA551-2 5.25" DS, DD, 48TPI \$128
MITSUBISHI M4851 5.25" DS, DD, 48TPI \$134
MITSUBISHI M4853 5.25" DS, DD, 96TPI \$138

*** EIGHT INCH DISK DRIVE SYSTEM ***

Two Tandon or Mitsubishi (your choice) 8" Half-height, double density, double sided drives in deluxe cabinet with heavy duty power supply and cooling fan, 2.4 MEG Storage total. Plug into H/Z-89 equipped with Magnolia DD Controller or any H/Z-100 computer. Payload \$997

*** POWER SUPPLIES AND CASES *** *** FOR DISK DRIVES ***

Rugged steel construction with heavy duty power supplies. Purchase with drives and we will install drives in case.
Single 5.25" unit for Full Height Drive \$68
Dual 5.25" unit, specify full or half height \$92
Dual 8" unit with fan, for half height drives \$225
Face plate for single drive in dual case \$8
For Winchester drive, with fan \$225

*** RAM CHIP SPECIALS ***

The finest available and at PAYLOAD prices. Order one to one thousand and add only \$2.00 for shipping.
64K Dynamic RAM, 150 ns \$2.09 each
256K Dynamic RAM, 150 ns \$4.99 each

TOSHIBA PRINTERS

The new generation printers are here. The Toshiba 3-in-1 printers offer high speed draft quality, near letter quality and high-resolution graphics using an advanced 24 pin dot matrix print head. Choice of serial or parallel interface.
P-1340 10" carriage, 144/54 CPS. Parallel or Serial \$649
P-351 (Improved P-1351) 15" carriage, 160/100 CPS: Parallel only \$1338
Parallel and Serial \$1367

PAYLOAD COMPUTER SERVICES

Your satisfaction is guaranteed. All hardware carries a 90 day warranty. Prices listed have been discounted for payment with order. VISA and MASTERCARD orders accepted. Add 5.00 to all prepaid orders for handling and shipping, we pay the balance. Actual shipping costs billed for net billing orders to approved accounts. We accept purchase orders from schools, government and approved accounts. Mail or Phone your order for prompt service.

CHARLES C. PORTER, Proprietor
15006 SUN HARBOR
HOUSTON, TEXAS 77062
PHONE (713) 486-0687

VECTOR GRAPHIC 56K CP/M computer, 315K Fdisk and 15 Megabyte Hdisk, wordproc, spreadsheet and business software, \$1669. 818-716-5220. 10-70

WANTED. CPM3.0 banked BIOS for SD systems SBC-200 with RS-232 terminal, VFI with 2-5 1/2 disk and 2-8" drives. Also, need real time clock board & 10 meg. HD controller & drive. Send info or call. **Loy Roberts**, 11800 Vail Drive, Okla. City, OK 73132. 405-722-9766.

(130) S-100 COMPATIBLE, PERIPHERAL

5 MEGABYTE hard disk drive subsystem for all S-100 systems. Kit \$450. **Digital Search**, 803-877-9444.

CP/M User Group Software now available on rental! Send for our Directory disk, just \$5 pp. or a SASE to **National Public Domain**, 1533 Avohill, Vista, CA 92083. 6-70

HARD DISK CONTROLLERS - Factory sealed - work with many popular computers... **AMPRO** Little Board (All Ampro boards), **WAVEMATE** Bullet, and many other computer systems. Emulates **XEBEC** 1410 and **DTC** 510. These excellent Shugart controllers have a 1K buffer and mount on any 5 1/4" hard disk. \$138 including manual. Call **Chuck Schuetz**, in California at 408-248-0134. Quantity discounts for 2 or more. 10-70

MICRO ANGELO 512x480 high res B/W video card \$379. Micropolis disk controller \$89. Cromemco D + 7A \$95. Z80 CPU with 56K \$139. US Robotics 1200 baud modem \$239. 818-716-5220. 10-70

PAL/PROM PROGRAMMER by Digital Media Duplicates and programs-most **PALS** and 2708-27128 EPROMS, \$800. Ithaca Intersystem Z80, CPU, \$100. JES Graphics board, \$25. JES 16 channel A/D, \$40. Micromation DS/DD FDC, \$110. Ithaca Audio DS/DD FDC bare board, \$20. Ithaca Audio video board, \$40. 215-584-0926, evenings. 9-70

S-100 CARD SALE!!

S-100 ENTHUSIASTS! Write the S-100 BOARD BANK for unusual, scarce USED items. Let's help keep the S-100 bus alive and viable. Mail order only, write us about your needs. Subscribe to our goody list. Send \$4.37 or more to **S-100 BOARD BANK**, Mailorder Dept. C1, Box 344, Olympia, WA 98507. 9-70

Shugart 801 drives \$60. Altair front panel board \$40. VIO-C display board \$30. S.D. Expando-Ram board (48K) \$30. PTC Cuts cassette interface with software \$20. TurboDOS ver 1.3 for Advanced Digital Super-six, original disks and manual \$150. 814-734-4919 after 6pm EST

WANT S-100 CARDS!

BOARD BANK BUYS 'EM ALL! (Well, almost.) ROM- RAM- CPU- VIDEO- GRAPHICS- I/O- AD/DA- FDC- HDC- SPEECH- the unique the better! Convert your extras to CASH. We buy SYSTEMS, peripherals too. Send FULL description and CHEAPEST asking PRICE to **S-100 BOARD BANK**, Mailorder Dept. C1, Box 344, Olympia, WA 98507. 9-70

(131) S-50 COMPATIBLE, PERIPHERAL

5 MEGABYTE hard disk add-on for SS-30 or SS-50 from \$450, with software and in interface. **Digital Search**, 803-877-9444.

(132) HEATH COMPUTERS FOR SALE

HEATH ZENITH ETA100 trainer, course full upgrade 128K, two disk drives plus Z-DOS, ZBasic, watchword, software, \$1200. Includes manuals. **Elmer Perl**, 1926 Mahan, Richland, WA 99352. 10-70

Xerox 820-1, 5 1/4" Drives, CP/M, wordstar, supercalc, Like New \$350. **Len** (212)777-4353.

ZENITH Z-100 with 192K, updated ROM, 2 drives, all manuals, considerable software, \$1300 or offer. ACT 10M harddisk with driver for Z100, \$600 or offer. **Dr. Sullivan**, 703-620-6320.

(132A) HEATH SOFTWARE, PERIPHERAL

5 MEGABYTE add-on hard disk subsystem for Heath-89. Kit - \$650. **Digital Search** 803-877-9444.

Cleveland Condronics High Resolution GRAPHICS board with documentation and mounting hardware. Low use. Compatible with H19 and H89 - \$200. *** **Trionyx** 64K 4MHZ memory board (MH8-A) - gold plated sockets and gold plated pins on RAMS - \$175 *** **Trionyx** arithmetic processor board for H8, w/hardware random number generator - \$40 *** **H8** chassis w/mounted fan, power supply, bus, front panel board, manuals - \$75 *** **SOFTWARE** \$50 each: CP/M, HDOS, Microsoft COBOL (HDOS), Microsoft BASIC Compiler (CP/M and HDOS), C compiler, PASCAL. Send SASE for complete list of languages and utilities *** **Bruce Bennett**, 2620 Schuyler Rd., Marietta, NY 13110. (315) 4393 Eves.

H/Z-100 used software with master disks and complete documentation. All require ZDOS, some require ZBASIC. Multiplan \$50. Wordstar v3.21 \$50. Peachtree Acctg.-3 modules \$70 each. All PP. Only one copy of each package available. 813-923-2940. 10-71

(133) BURROUGHS SYSTEMS

BURROUGHS B-92-CSY, 3/6 MB inbuilt mini disk, 38.7 MB fixed disk, memory upgrade 128 to 256, two peripherals. Reasonable offer. Contact **Charlotte** 205-556-1943. 10-74

FOR SALE: Burroughs L-9000 mini-computer 27" carriage with two cassette drives. Best offer. **Walter E. Baker**, 115 N. Main St., Mt. Holly, NC 28120 704-827-4430.

(134) HEWLETT PACKARD COMPUTERS FOR SALE

HP-150 TOUCHSCREEN w/256K, 9121 dual drives. Software package includes

Memomaker, Cardfiler, MS-DOS/owner's manual, Lotus 1,2,3 (or Visicalc) Mailmerge and BPI General Accounting. Demo unit like new, \$2000. H-P dual bin Sheetfeeder, Model 26010D, for H-P 2601 Printer, list \$2290 for only \$800. Like new. **S. Mills**, 4615 Orleans Blvd., Jefferson, LA 70121. 504-733-9611. All add-post.

HP-150 with 15MB hard disc. All software imaginable. Must sell now. Touch screen. One owner. Perfect shape. \$2800 firm. Call 501-377-2093 now. 11-74

(HP 2810A) Super. calculator and engineer computer. In first class conduction. Unit has moth, plotter, and Alpha Numerical printer modular. They are worth \$1300. Unit has all option including status and programming printer, also magnetic card reader unit. Asking \$2700 OBO Call 213-462-4609

HP86B, 128K, CRT 3.5 Dual drives, cp/m interface, ROMs UCSD Pascal compiler manuals, Almost new, only \$1,350. Call 913-749-3477.

HP INTEGRAL PERSONAL COMPUTER 9807A, Built-in Think-jet printer, 256K byte RAM card 82925A, 14.8M byte Winchester drive 9134D. Under warranty. \$7,500 OBO. 615-525-6358.

(134A) HEWLETT PACKARD COMPUTERS WANTED

Junkman Will Buy! I buy old scrap IC's, relays, circuit boards, diodes, any mixed junk, gold plated, transistors, connectors, dirty, broken, smashed or useless electronic junk - any amount! 1930 to 1985. Nothing refused! 10 years in business. Pack in boxes and ship UPS. Fast payment! **JUNKMAN**, 103 Saratoga St., Lawrence, Mass. 01842. 9-73

(134B) HEWLETT PACKARD SOFTWARE, PERIPH.

HP 2640B TERMINAL for sale - \$275 plus FC. Good working condition with users manual. SASE inquiries. **George Herzog**, 200 Monterey St. #11, Brisbane, CA 94005. 10-70

★ ★ ★ HP-71B SPREADSHEET

ORDER SS71. Use your time solving problems, not writing programs. SS71 is the first, best, and lowest price spreadsheet program for the HP-71B. Many unique features. Fully portable on the LCD, or full-screen editing on the 80 column video. Four data entry modes. CALC, BASIC, SS71, or your program. Up to 9,800 cells with plug-in RAM. Values, labels, formulas, and custom formats. Possibly more computing power than any other micro-based spreadsheet. Send \$60. Receive, by air, SS71 on a new HP 3.5 inch disk or tape cassette (your choice), instructions, and sample data. Mail to **Rich Hairston**, 1226 Mission Ave., Carmichael, CA 95608.

HP 9121D series 80 3 1/2" drives, \$750. **Jim** 707-277-9317. 10-70

HP 9134D 14.8M byte Winchester drive. Under Warranty. \$3,040 list price, sacrifice for \$2,300 OBO. 615-525-6358.

HP-IB INTERFACE for Series-80 \$300. 6 ROMs for HP-85A or HP-85B, with manuals. Assembler, and I/O ROM, \$225 each. Matrix, printer/plotter, advanced prog. and mass storage \$150 each. Call 914-229-7402. **Don Lindley**, Box NBU #68, Ledges Drive, Hyde Park, NY 12538. 11-71

STOCK MARKET programs for HP 86/87 computers. Powerful programs for selecting and evaluating stocks and commodities. Send \$39.95 to **Lock Software**, Box 3163, Baltimore, MD 21228. Specify disk size. 9-79

(136) DATA GENERAL SYSTEMS

NOVA 1200: 8K Core, 4023, 4007, 4029, extra console board, technical manual, reference manual, \$350 OBO. Will deliver New England. **Weaver**, 500 Webster Street, Rockland, MA 02370.

(138) DATA GENERAL SOFTWARE PERIPH.

DATA GENERAL One external 5 1/4" disk drive. Essentially new \$500. 308-345-1480 days, 308-345-3553 nights.

(148) DEC SYSTEMS FOR SALE

DEC DATASYSTEM 348 New 1983, PDP-11/24 256KB, (2) RK07 Disk Drives (4) VT 100 Video Terminals, 300 Line Per-minute Printer, DZ11-A Multi-Line Interface 1200 baud modem, tape drive - Model TS11-CA. Best offer. **PHSI, Controller**, 43 West 23rd Street, NYC, New York 10010. 11-71

DEC PRO350 System. One Pro 350 w/512K, drives, 10M HD, floating point adaptor, LQP02 Printer, Maps/Pro Financial Planning Software and RDM Relational Database development software included. Will sell printer separately. Also have a Pro350 as above w/o HD and FP Adaptor. Includes RDM software at substantially reduced price. **S. Mills**, 4615 Orleans Blvd., Jefferson, LA 70121. 504-733-9611. All add-post.

DEC RAINBOW 100, 256K, Dual 400K drives, monitor, keyboard, softwares. \$1300. Best offer or trade. 818-334-1185.

DECmate 278A-AS with RL278-EA dual hard disc drives like new used two months available for inspection. **Friends Journal**, 215-241-7278, 1501 Cherry Street, Philadelphia, PA 19102. 7-71

LSI 11/23 system, FPU and MMU chips, 64KB, dual floppies, 10MB RD51 Winchester, RQDX1 controller, RT11 V5.1 license, Z-29 terminal, MPI-99 printer, \$4000. Call **Rich**, 305-356-2639 (Days), 305-855-7821 (Evenings), 5242 Ansonia Court, Orlando, Florida 32809. 10-70

PDP11/23 COMPUTER, 160KB memory, MMU, FP, RX01 equivalent, RKV11 10MB, 6 ports, 2 terminals, printer, spares, \$9000. Ideal for laboratory/educational applications. Ed 614-846-6248.

★ ★ ★ PRO 350's CLEARANCE

512K, 10MB h/disk, POS2.0 with LA100 or LA50 printer. Slightly used. 201-890-1155 **BAC-DATA**. 9-70

(149) DEC SYSTEMS WANTED

DECIMATE II amber or green monitor, gold key keyboard CP/M (CPU board) or XPU, operating systems, W.P.S. DEC Spell, CBI program can pay \$1000. **Shirley Hawn**, PO Box 57, Jones, MI 49061.

RAINBOW 100B with amber or green monitor, gold key keyboard, word processing software. Can pay up to \$1000. **Shirley Hawn**, pO Box 57, Jones, MI 49061.

WANTED: Documentation, Schematics, prints for most computers, peripherals. Will pay. Mark, evenings 213-388-7839 or POB 17892, Los Angeles, CA 90017.

(150) DEC SOFTWARE, PERIPHERAL

DEC VR-201-B Monitor, Green, New \$60.00 ET Desk Mount Motorized Stand \$75.00. **Len** (212)777-4353.

Dec 100 Software, MS-DOS 2.05 \$30.00, Concurrent CP/M-86 \$100.00, Newline Touch Typist \$25.00, Dr Autosort \$30.00. **Len** (212)777-4353.

Xerox 820-1, 5 1/4" Drives, CP/M, wordstar, supercalc, Like New \$350. **Len** (212)777-4353.

(154) IBM SYSTEMS FOR SALE

IBM 5100 computer, 5106 module and 5103 printer - best offer. Ask for **Bob** 313-962-8328 or 313-881-4805 after 6PM.

IBM MAINFRAME - System 3 Model 8 with 3 hard disk drives, line printer, two data entry consoles, complete system. Excellent condition, \$1500. Call 315-986-2719. 11-73

IBM SYSTEM/23 with software, printer, supplies, and documentation \$4500 or best offer. **Data-Mark Inc.**, PO Box 12213, Augusta, GA 30904.

(155) IBM SYSTEMS WANTED

PC with hard disk, monitor & keyboard, 256K. Ph. 406-222-2668. 10-70

Paying \$5.00 per pound for scrap tantalum capacitors. Any amount, fast payment! Ship: **Sciuto**, 103 Saratoga St., Lawrence, Mass. 01842. 9-79

WANTED: Documentation, Schematics, prints for most computers, peripherals. Will pay. Mark, evenings 213-388-7839 or POB 17892, Los Angeles, CA 90017.

(156) IBM SOFTWARE PERIPHERAL

900 + PUBLIC DOMAIN Disks/peripherals for IBM-PC, Apple, CP/M, Commodore, Compatibles. Catalog SASE or \$3.00 detail directory disk. Specify computer type. **PanWorld International**, 422 Halsey Road, North Brunswick, NJ 08902. 10-70



COMPUFAN IS FINALLY HERE Makes great entertainment and most valuable gift 20 categories of raunchy jokes IMB compatible disk \$7.95. **LB Enterprises**, 30 E 42nd St., Room 906, NYC, NY 10017. 11-72

CROSSTALK XVI, open systems general ledger and team manager with Basic interpreter. Make offer. **Louis Saporito**, College Ave., Lima, NY 14485. 10-72

★ ★ ★ DO 800 x 640 GRAPHICS FROM BASIC

RAMDRAW routines give your PC an added dimension. 227 graphics characters, 512K addressable points, faster execution and an affordable price. Requires no special hardware (compatibles too) just 68K of spare memory and a graphics printer. Send \$25 for disk and documentation or write for more details. Object code also available for compiler. **B&P Software**, Box 70004, Ft. Wayne, IN 46807. 7-71

FREE - Public Domain Software for IBM PC (small charge to cover s/h cost \$5.95/disk) Modem Line 818-352-0254. **Data Carrier Corporation**, 3704 1/2 Foothill #104, La Crescenta, CA 91214. 9-71



HOT ITEM

PROVEN Fractal zoom graphic program for IBM PC and alikes. Requires COLOR Monitor and 64K memory and PC-DOS or MS-DOS. Creates startling images by

WANTED

USED COMPUTERS

WE PAY CASH FOR ANY QUANTITY OF LEADING MANUFACTURER COMPUTERS & PERIPHERALS.

icb
INTERSTATE COMPUTER BANK

Call Purchasing
for Quote
(415) 961-3811

new Virtual Graphic (TM) process. Program on disk - \$14.95 includes postage and tax. Specify your system and disk format. Inquiries use SASE. VISA or MC. Herzog Company, Dept. S5, 200 Monterey St., Suite 11, Brisbane, CA 94005. 10-70

IBM PUBLIC DOMAIN
300 VOLUMES-RENT AND COPY for \$1 each or we will copy for you! \$3 SSDD volume, \$6 DSDD. Sampler disk \$5 (20 files). Send LSASE for info (Specify computer); Futuresystems, Box 3040(C), Vista, CA 92083.

Public Domain Software for the IBM!
Thousands of programs to Rent 'n Copy. IBM PC-SIG 274 disks, just \$300 for seven days. Call 619-727-1015 for more info or National Public Domain, 1533 Avohill, Vista, CA 92083. 6-70

WANT TO TRADE software for the IBM PC. Send your list and I'll return mine. Will accept any reasonable trade. Ray, 20295 Anita Ave. #6, Castro Valley, CA 94546.

(166) MISC. (HARDWARE & SOFTWARE)

MAXICOM XL 32 USER 160 MEG MPM NETWORK \$14,450!

MAXICOM XL Multiuser computer. Complete with 160 meg. Marksman hard disk, 32 Z80 AP cards, operating system, 30 day guarantee. BCE 202-944-3900.

WANTED - WANTED We buy used DP-Computers in working condition. Tel. 904-427-4445. 10-72

(172) DISK DRIVES

8" DSDD 1/2 height Shugart Mod SA 860-1 unused condition with full one year warranty. Price \$279. These drives have track to track access times of 3MS. They will work as replacements for Shugart 800, 801, 850, 851. They require no AC to operate. CEC, 1745 Adrian Rd., Burlingame, CA 94010. 800-228-3411.

8" SSDD 1/2 height Shugart Mod SA 810-1 unused condition with full one year warranty. Price \$269. These drives have track to track access times of 3MS. They will replace Shugart Mod 800, 801, or any other 8" SSDD drives, however they require no AC to operate. CEC, 1745 Adrian Rd. Unit 1, Burlingame, CA 94010. 800-228-3411.

8" SSDD drives. \$75. Can be used as Double Density. Removed from operational equipment. Digital Search, 803-877-9444.

801R SHUGART 8" drives \$60 each. Owens MaxBox with supply \$120. Two drives and Matbox package \$200. All mint. Bob 516-921-1465.

ALIGNMENT DISKS 5 1/4 48 TPI SS \$15. 5 1/4 DS 48 TPI \$19.95. 5 1/4 96 TPI SS \$15. 5 1/4 96 TPI DS \$19.95. 8" DS Alignment disk \$24.95. CEC, 1745 Adrian Rd. Unit 1, Burlingame, CA 94010. 800-228-3411.

CABINET for two 8 inch disk drives. Rack mount style. Fan, all AC and DC wiring with power supply \$120. Cascade Electronics Inc., Route 1 Box 8, Randolph, MN 55065. 507-645-7997.

CM15412 hard disk drives 5 1/4" full height, 10 megabyte, \$250. 503-942-7581. 11-72

CORVUS 8" floppy controller for Apple computer get more storage for your Apple. Furnished with schematic. Price \$29.95. CEC 1745 Adrian Rd., Burlingame, CA 94010. 800-228-3411.

ALIGNMENT DISKS 5 1/4 48 TPI SS \$15. 5 1/4 DS 48 TPI \$19.95. 5 1/4 96 TPI SS \$15. 5 1/4 96 TPI DS \$19.95. 8" DS Alignment disk \$24.95. CEC, 1745 Adrian Rd. Unit 1, Burlingame, CA 94010. 800-228-3411.

for free catalog. Add \$5 shipping for each 8" drive and \$2.50 shipping for each 5 1/4" drive. CA residents add 6 1/2% sales tax. Gilley Engineering, PO Box 810, Hermosa Beach, CA 90254-0810. 11-71

DISK DRIVE SERVICE

Shugart SA-800-2, \$25. Shugart SA-850/851R, \$35. 5 1/4" SS, \$25. 5 1/4" DS, \$35. 8" SS, \$40. 8" DS \$50. Price includes complete alignment, bench and system test. Parts and shipping extra.

DRIVES FOR SALE

Shugart SA-800-2, \$79. Shugart SA-850/851R, \$129. Shugart SA-851R, \$139. MPI 52S 5 1/4" DS/DD, \$70. TEC FB-501 5 1/4" SS/DD, \$59. Shipping extra. LDI Electronics, 13392 158 St. N., Jupiter, FL 33458. 1-305-747-7384. 10-70

HARD DRIVES-ST225, 1 year warranty (min. qty. 12) \$350. SA712 1/2 height, low power, 1 year warranty (min. qty. 10) \$240. Controller cards (min. qty. 10), \$145. Distributor Line, 813-949-1953.

8" DSDD 1/2 height Shugart Mod SA 860-1 unused condition with full one year warranty. Price \$279. These drives have track to track access times of 3MS. They will work as replacements for Shugart 800, 801, 850, 851. They require no AC to operate. CEC, 1745 Adrian Rd., Burlingame, CA 94010. 800-228-3411.

INNOVEX 200 8" SSDD DRIVES, excellent quality. Can be used double density. 4 for \$100. Complete, but require alignment or adjustment. Digital Search 803-877-9444.

8" SSDD 1/2 height Shugart Mod SA 810-1 unused condition with full one year warranty. Price \$269. These drives have track to track access times of 3MS. They will replace Shugart Mod 800, 801, or any other 8" SSDD drives, however they require no AC to operate. CEC, 1745 Adrian Rd. Unit 1, Burlingame, CA 94010. 800-228-3411.

Junkman Will Buy! I buy old scrap IC's, relays, circuit boards, diodes, any mixed junk, gold plated transistors, connectors, dirty, broken, smashed or useless electronic junk - any amount! 1930 to 1985. Nothing refused! 10 years in business. Pack in boxes and ship UPS. Fast payment! JUNKMAN, 103 Saratoga St., Lawrence, Mass. 01842. 9-73

CORVUS 8" floppy controller for Apple computer get more storage for your Apple. Furnished with schematic. Price \$29.95. CEC 1745 Adrian Rd., Burlingame, CA 94010. 800-228-3411.

ALIGNMENT DISKS 5 1/4 48 TPI SS \$15. 5 1/4 DS 48 TPI \$19.95. 5 1/4 96 TPI SS \$15. 5 1/4 96 TPI DS \$19.95. 8" DS Alignment disk \$24.95. CEC, 1745 Adrian Rd. Unit 1, Burlingame, CA 94010. 800-228-3411.

MICRO-FLOPPY 3 1/2" drives. 500K bytes Shugart SA300 w/warranty - \$169 each. NEC FD1035, DSDD (1 meg) \$175 each. Same interface as 5 1/4" drives. Digital Search, 803-877-9444.

8" SSDD 1/2 height Shugart Mod SA 810-1 unused condition with full one year warranty. Price \$269. These drives have track to track access times of 3MS. They will replace Shugart Mod 800, 801, or any other 8" SSDD drives, however they require no AC to operate. CEC, 1745 Adrian Rd. Unit 1, Burlingame, CA 94010. 800-228-3411.

Multi-Bus Disk Subsystem includes: DTC multi-Bus host adapter, DTC 1403E Disk Driver Controller, Shugart SA-1004 10 MB, 8" Hard Disk Drive, Shugart SA-801 8" SSDD Disk Drive, Removed from new, tested equipment, \$350. Len (212)777-4353.

SHUGART SA800-2 disk drives removed from service, tested and guaranteed 60 days \$65. SA850 removed from service and guaranteed 60 days \$119. Cascade Electronics, Inc., Route 1 Box 8, Randolph, MN 55065. 507-645-7997.

SURPLUS DRIVES

***Ultra-fast quiet Persci 299B.** *Dual-slot 8" floppy, 2.4 megabyte. *DSDD Voice-Call positioner. *Same size as a 0.5 megabyte SA-801. *Industrial-grade, heavy-duty. *\$295 used w/30-day warranty. *\$119 as-is w/no missing parts. ADX, Inc., P.O. Box 24168, Lyndhurst, Ohio 44125. 216-486-2888. 9-73

TALLGRASS HARD DISK AND TAPE BACKUP

Tallgrass model 3135. 35 meg hard disk with 45 meg tape backup. Almost new, Cost \$5,000. Asking \$3,000. 212-661-4040.

TWO SIEMEN'S 5 1/4" disk drives model 282. \$150 both or best offer. Laszlo

Hohner, 168 Hildreth Place, Yonkers, NY 10704.

Tallgrass 20 + 20 harddisk and tape backup. 20 meg each. List \$450 will sell \$2000. Like New. Louis Saparito, College Ave., Lima, NY 14485. 10-72

WANTED 1541 Commodore Disk Drives. \$100 for those in working condition. Please call 205-221-5211. 4-74

WE HAVE LIMITED QUANTITIES OF THE FOLLOWING: Switching power supply, 5v @ 2.5a, + 12v @ 2a, - 12 @ .1a, \$15. 115v input 40 watt continuous, good for small computer, terminal boards, or spooler projects. 40 pin IDC ribbon header socket, gold strain relief, \$1.35 or 5 for \$6. Apple Profile hard disk 10 meg., like new \$895. Apple Profile hard disk 5 meg., used \$495. Apple Profile hard disk 5 meg, used, top cover missing, \$350. \$10 minimum, check or money order. Add \$3 for shipping, excess refunded. AJ Ram Associates, Box 94, Sullivan, NH 03445.

WINCHESTER CONTROLLER KIT. Will control most all popular hard disk drives, \$200. Faster than Western Digital WD1002 controllers. SA1002 8" hard disk controller also available. Digital Search, 803-877-9444.

WINCHESTER DRIVE SALE. Shugart SA1002. 8" - 5 megabytes, unused \$99 each, controller kit \$200. Digital Search, 803-877-9444.

Wanted info on ICOM dual 8" disk drives FD5712-56 or FD57V12-56 need schematics any info you may have Glenn Blizzard, 614 Hollywood Ave., Suffolk, VA 23434. 10-70

8" DSDD 1/2 height Shugart Mod SA 860-1 unused condition with full one year warranty. Price \$279. These drives have track to track access times of 3MS. They will work as replacements for Shugart 800, 801, 850, 851. They require no AC to operate. CEC, 1745 Adrian Rd., Burlingame, CA 94010. 800-228-3411.

(174) PRINTERS

3M WHISPER WRITER TERMINAL TELEPRINTER Model 1980 keyboard model 1945 plus six rolls paper, Like New \$695. Budruss Inc., 10 Audrey Ave., Oyster Bay, NY 11771. 10-71

C.I.TOH, NEC owners - get - Correspondence Quality print with our ROM installed. Our font replaces Proportional font. All other functions remain. If you have older C.Itoh or NEC 8510 or 1550 (with plastic bottom plate), send \$30 + \$5 S&H (\$40 + \$5 for newer style unit) for ROM and instructions, or SASE for sample of print qualities to: Microtrend Computers, 56 Ferris Street, Corning, NY 14830. 607-936-3053. Money back if not satisfied. 10-71

COMMODORE MPS-801 printer, excellent shape! Only 6 months old! ** Only \$130 ** Contact: Guy Barel, Route 1, Box 75, Unionville, VA 22567.

CUSTOM WORDSTAR Instructions for Epson, Star/Gemini, Panasonic, Citizen, BMC, Legend, Olympia, Okidata, Pro-writer printers; get boldface, continuous underlining, super/subscripts, compressed, enlarged characters and more. \$10, specify computer and Wordstar version. LAI, PO Box 13118, Minneapolis, MN 55414. 11-72

Comrex CR-1 Tractor (CR-1-FT) Wanted: W. Riggert, 10831 W. Ten Mile Rd., Oak Park, MI 48237, 313-548-6440. 9-70



DATA SOUTH DS-180. Excellent condition. Must sacrifice, best offer. Sunset Road Medical Associates, 215 Sunset

Road, Willingboro, New Jersey 08046.

DIABLO 630... letter quality printers like new, perfect condition, from \$875. 630 API (serial & parallel) \$1125. Diablo 1650.KSR, metal wheel, 45CPS \$925. Model 620, 24 cps, \$525. Full warranty. Superior equipment at reasonable prices! Expansion Products Service Company, (certified Diablo Service center). Contact us for full details & pricing: PO Box 4217, Mountain View, CA 94040. 415-965-7222.

DIABLO P-11 dot matrix printer, (list \$649), unused \$200 each. 90-day warranty. 100 CPS parallel interface, excellent quality. Digital Search, 803-877-9444.

DIABLO PRINT wheels #38100-02 Xerox #9R80057 courier 10 #38102-02 Xerox #9R80059 Elite 12, #38107-01 Xerox #9R80064 courier 72. \$3 each or 6 for \$15. Cascade Electronics, Route 1, Box 8, Randolph, MN 55065. 507-645-7997.

THE MAIN SOURCE ELECTRONICS COMPANY

Offers The Best Selection And Prices
Take A Look

HARD DISK DRIVES

Segate ST 506, 5MB	\$130.00
Segate ST 412, 10MB New	\$325.00
CMI 5412, 10MB refurbished	\$225.00
DISCTRON 514 10MB	\$225.00
FUJITSU 2234, 84, 94	Call

FLOPPY DRIVES

MPI B52, DS/DD, Full Ht	\$65.00
MICROPOLIS 1115V, DS/QD, Full Ht	\$95.00
QUME TRK 142 DS/DD 1/2 Ht	\$100.00
MITSUBISHI 4853 DS/QD 1/2 Ht	\$125.00

CALL FOR TESTED PRICES ON ANY ITEM BELOW

MICROPOLIS 1115V, SS/QD Full Ht, As Is	\$35.00
TANDON TM100-1, 2, 3, 4, As Is Unused	\$75.00
PERTEC Floppies, 200, 500, 600 Series	Call
SHUGART SA400 & 800 Series, As Is	\$29.00 & Up
SHUGART SA860 DS/DD 1/2 Ht 8" Unused	\$129.00

Attention Repair And Maintenance Houses
Major Subassemblies For Above Items Including
Power Supplies, Printers, Monitors, New And Used Fans
Head Assemblies, Motors And Boards

If You Don't Find It Here, Call Us!

(818) 982-1000

Availability Subject To Prior Sale

PRINTER REPAIR

\$59.95 plus parts

OKIDATA —	ML Series
EPSON —	MX, FX, LX, RX Series
STAR —	(All)
C-I TOH —	A10, 8510, 1550 Series
IBM —	Matrix, Proprietary

Call on Other Printers

CALL FOR RAN #



ADAHK INC.

7260 Collamer Road
East Syracuse, New York 13057

Units returned UPS — COD

Still doing
P.S. - the best
disk drive
repair
around.

(315) 656-3988

DISK DRIVE CLEARANCE some used, some new, but all are tested and working. Shugart 8" (801) SSDD, \$69 ea. Shugart 8" (800-2) SSDD, \$59 ea. Qume 5 1/4" (142) DSDD, \$59 ea. TEC 5 1/4" (FB501) SSDD, \$49 ea. Specify alternate if desired. Also IC's, resistors, capacitors, software and misc. Send

DIABLO or Qume printer power supply kit. \$75. New QUME pin feed platens, \$40. Digital Search 803-877-9444.

Diablo 1640KSR letter quality printer with Rutihauser tractor feed - both in mint condition - plus some ribbons and assorted print wheels. Asking \$1,200 or best offer. Call Al Schumer, 617-451-2006 days or 617-246-3779 evenings and weekends. 9-70

Diablo Printer Mechanisms model 1200 Hy-Type I tested and complete with factory manual. Less power supply and cover. H. Cooper, 1313 Brownstrow Dr., Raleigh, NC 27610. 9-71

EPSON LQ-1500 NEW with serial interface unit, tractor feed, dust cover, print-head cleaner and 3 ribbons, in original box, never used. \$1250 plus freight. Call James Grauerholz, 913-841-3905.

FOR SALE: IBM Selectric terminal taken out of service. 15" carriage, do-it-yourselfer. Can be made into letter quality printer or Selectric typewriter or both. We tell you how. \$115. Ron's Electronics, N5009 Sunset Vista, Onalaska, Wisconsin 54650. 1-608-783-5341.

GEMINI STAR X-10, 100cps, roll and pin feed, used 3 months, w/cable, manuals & original box. \$485 new, \$325 now. M. Tyler, Rt. 2 Box 563-B, Mocksville, NC 27028.

Gemini 15 Printer, with IBM parallel cable \$225 plus shipping Parallel A-B switch \$75. Bill Westheimer, 212-431-6360. 11-71

IBM LETTER quality printer/typewriter, 15 inch carriage, microprocessor controlled interface. Takes care of all timing and code conversion. Dual interface uses either serial or parallel, depending on your computer needs. Baud rates adjust from 110-9600. Built-in self test to check out proper operation of interface and printer. All units come with backspace and are cleaned and rebuilt. They are set up for standard type elements. Can also be used as a standard typewriter. Immediate shipment. \$369. Ron's Electronics, N5009 Sunset Vista, Onalaska, Wisconsin 54650. 1-608-783-5341.

ADDS Viewpoint \$401.00



DIGITAL SEARCH

103 S. Main St.
Greer, S.C. 29651
(803) 877-9444

SHUGART DISK DRIVE PARTS

SA800 Head (used)	\$15.00
SA800 Stepper (used)	\$10.00
SA800 TTL Logic Brd Working	\$35.00
SA800 TTL Logic Brd Not Working	\$10.00
SA850 Head And Stepper	\$50.00
SA850 Logica Brd Not Working	\$40.00
SA800 Or SA850 Index LED	\$3.00
SA800 Or SA850 Spindle Bearing	\$3.00
SA800-2 Disk Drive Guaranteed	\$65.00
SA850 Disk Drive Guaranteed	\$119.00

SA800 Repair \$20.00 Plus Parts
SA850 Repair \$30.00 Plus Parts

Keyboard by Microswitch 113 Keys, 8 Bit, ASCII Output with case \$40.00

Cascade Electronics
Route 1, Box 8
Randolph, MN 55065
507-645-7997

COD Add \$2, Credit Card Add 5% MN Add 6%

INTERFACE KIT for Diablo or Qume printers RS232 or Parallel, \$95. Parts for Qume and Diablo HyType I: Repairs, cases, power supplies. Digital Search, 803-877-9444.

JUKI 6100: Daisywheel printers if your printer is defective and Juki Industries or their distributor has declined to honor it's warranty to you. Please write to me regarding all the particulars write to: DWP/6100, POB 613, Pocono Pines, PA 18350-0613. 10-74

Junkman Will Buy! I buy old scrap IC's, relays, circuit boards, diodes, any mixed junk, gold plated, transistors, connectors, dirty, broken, smashed or useless electronic junk - any amount! 1930 to 1985. Nothing refused! 10 years in business. Pack in boxes and ship UPS. Fast payment! **JUNKMAN**, 103 Saratoga St., Lawrence, Mass. 01842. 9-73

Microtek MT-80s 80 column, 160 cps, Dot, Matrix Printer, Serial Input, Tractor Feed, \$125. Len, (212)777-4353.

NEED A PRINTER? Commodore 1525 printer for sale. Only been used about a half a year. Make offer. Call 414-474-4583.

OKIDATA 80 CPS, 7x9 Dot Matrix, friction feed, 10 characters per inch, 6 or 8 lines per inch, built in self test, new ribbon, 60 day guarantee, removed from service, parallel interface \$99. Serial interface \$119. New in box add \$20. Tractor feed free with printer or \$35 without printer. Cascade Electronics, Route 1 Box 8, Randolph, MN 55065. 507-645-7997.

OLYMPIA'S ELECTRONIC COMPACT NP \$180

NEAR LETTER QUALITY
Serial impact Dot Matrix, 165 cps, friction or tractor feed, 10 inch carriage, unopened boxes, 30 day guarantee.

OLYMPIA 83A's \$195
Dot matrix, 200 cps, Centronics interface, 30 day guarantee. Call BCE 202-944-3900.

POWERTYPE DAISYWHEEL printer, unused, CardCo B I/F, 6 wheels, \$295. ProWriter 8150, 3 extra ribbons, \$240. 203-569-0564. 11-71

RIBBONS: BROTHER/COMREX/DYNAX. Film: 6/\$22.50; Nylon: 6/\$27; Multistrike: 6/\$30. Daisywheel \$21.95. Add \$3 shipping. Kyttek Marketing, PO Box 13070, Minneapolis, MN 55414. 612-379-1020. 11-72

SHEET FEEDERS For Olympia compact R.D. TTX 1014 Naka Jima \$69.95. Guaranteed. Remtec 415-829-4976. 8-70

SPECIAL DIABLO HY-TYPE 1 RIBBONS LOST IN WAREHOUSE Multi strike black Mylar ribbons for Diablo Hy-type 1. Will fit on Hy-type 2. Qty 1 \$3.00 ea. Boxes of 6. 1 box \$13.00. 2 boxes \$25.00. 6 boxes \$65.00. 12 boxes \$125.00. 24 boxes \$200.00. Expiration date has pass-

ed, but ribbons work perfectly. Prices do not include shipping. Marshall Fletcher, 68 Walnut Park, Rochester, N.Y. 14622 (716) 266-6760 10-70

TI-810 BASIC. Excellent condition, \$500. Paragon Computer Corporation, 203-525-0389. 10-71

TRACTOR FEED for Microline 80 or Microline 82. New in box \$35. Cascade Electronics, Route 1, Box 8, Randolph, MN 55065. 507-645-7997.

Tektronix 4632 Video Hard Copy Unit High resolution, fast b/w copy (6 step gray scale) from composite video input. First 8.5 x 11 inch copy in 18 seconds, add'l copies 9 sec/ea. Extra paper. Lists at \$6355. Asking \$1950. Gd. Cond. Len (212)777-4353.

Teletype Model 43 Type 4320 KSR, 300 baud hard copy terminal/Printer. RS-232 with carrying/shipping case. \$250. Len (212)777-4353.

Texas Inst 820 KSR pkg. Printer 150 cps, 1K Buffer, RS-232 \$600. Len (212)777-4353.

VERSATEC V80 Electrostatic printer plotter 200 dot/inch graphics 1K LPM print 1.5 in/sec plot mode excellent condition RS232 serial or Centronics parallel interface orig. cost 12K \$4500. Claude Lawless, 408-637-8768. 10-71

VERSATEX D1110A Electrostatic printer plotter 100 Dot/Inch graphics 1K LPM print 1.5 in/sec plot mode excellent condition RS232 serial or Centronics parallel interface. Orig. cost 10K, \$1500. Claude Lawless, 408-637-8768. 10-71

WANTED: OKIDATA SL125 or SL160 printers, broken or working, we pay shipping. 614-436-8080. 11-76

WANTED: a dot-matrix printer for under \$70 and 300 baud modem for under \$50. I am sorry, the prices quoted might look ridiculous, that's the best I can afford. B.S. Vishwanath, PO Box 3622, E.T. Station, Commerce, Texas 75428. 214-886-8580.

ZENITH Z-125 Dot Matrix printer. 9x9 matrix, excess of 150 CPS, 10, 12, 13.2, 16.5 characters per inch. Full 95 character ASCII font plus block graphics. 256 character buffer. \$395. Cascade Electronics, Route 1 Box 8, Randolph, MN 55065. 507-645-7997.

(178) TAPE DRIVES

APPLE 9-TRACK TAPE DRIVES - Read/write standard 1/2-inch, 800 BPI, IBM compatible tapes on an Apple. Exchange data with minis and mainframes. Backup floppies and hard disks. \$1200-\$3000. Electrovalue, Box 376-C, Morris Plains, NJ 07950. 201-267-1117. 8-78

IBM-PC 9-TRACK TAPE DRIVES
Electrovalve Industrial, a pioneer in providing industry standard 800 BPI 9-track tape drives for the Apple (see article, April Computer Shopper, p. 46) now has a product for the IBM-PC. Exchange data with minis and mainframes. \$1600-\$3000. Call for brochure. Electrovalve Industrial Inc., Box 376-CP, Morris Plains, NJ 07950. 201-267-1117. 7-77

1/2" MAG tape drives. New and used. Wanco 7" & 10" from \$150 to \$40 ea. Digital Search, 803-877-9444.

(180) CRT'S

(181) TELE-VIDEO CRT TERMINALS

EMULATION TERMINAL with greer screen, acts like Teletype 910 ADDS2! Hazeltine 1410 ADM-5. Great for multiuser systems in original carton \$225. Claude Lawless, 408-637-8768. 10-7

TELEVIDEO 912 excellent condition, no used much. 30 DRP. Taking bids 301-261-5860.

TELEVIDEO 950. Almost new, less than 100 hours. Original carton with use

manual and RS-232 cable. \$350. Only one to sell. 817-336-9891. 11-72

TELEVIDEO 925's \$325

Many available, reconditioned, with 30 day guarantee. Call BCE 202-944-3900.

TELEVIDEO TERMINALS 910's - \$189

30 day guarantee. Quantity discounts. Call BCE 202-944-3900.

(182) TERMINALS

ADDS VIEWPOINT + ERGO with original 90-day warranty. \$400. Digital Search 803-877-9444.

AMDEK 300A monitor with attached VT100 style keyboard. Keyboard is 30C baud. RS232 interface built into monitor case, \$150. 216-248-1782.

Beehive CRT's and parts for sale, rent or lease. Repair exchanges also Cade beehives and cromemco 3102's Superbee II's, B100, B300/400, B500/550 Microbee, DMIS DM20/30, DM83, DM3270, DM standards, ATL083, ATL3270, ATL004, and more. Call Mark (916) 677-0355 10-76

DEC VT100 terminal with advanced video option. RS232 interface, \$550. 216-248-1782.

TEKTRONIX 4015-1 enhanced graphics IBM 360/370 I/F. RS-232 I/F (opt 01). Manuals. Asking \$1800. Chris Fandt, 111 Harding Ave., Jamestown, NY 14701. 716-488-1722 after 6PM EDT. 11-71

TEXAS INSTRUMENTS Omni 800, 820-KSR. Excellent condition. Must sacrifice, best offer. Sunset Road Medical Associates, 215 Sunset Road, Willingboro, New Jersey 08046.

(183) MULTIBUS BOARDS

Intel (2) portable PDS-100 development systems with all options, 8051-emulator and Prom Programmer. All s/w included. Both units for \$8700. Matt (408)-973-9691 10-70

Intel SBC-86/05 (\$245), SBC-012B (\$585), SBC-254S-1 (\$250), SBC-608 (\$220) Ed (408)-252-9852 or Mat (408)-973-9691. 10-70

Multi-Bus System includes: Electronic Solutions 9 slot Multi-Cage Microbar Systems DBC86 8086 CPU Card, Microbar Systems DBR50 256K Memory card, central data corp quad serial interface, Imteks custom interface card. Never Used, \$425. Len (212)777-4353.

(184) MEMORY

6116-4-LP150ns static ram memory, low power. new \$1.00 each. 216-226-9557 10-70

MICRO-WONDERLAND. We will do our best to beat any prices for memory ICs! Brand new - 1985 production: DRAMS, SRAMS, EPROMs and other ICs. Fast delivery! Need any chips? Brand new or surplus pulls - call for current prices! Any Quantity. Volume Buyers - Tell us what you're paying! We are here to sell you parts! For more see our ads in "COMMODORE COMPUTERS FOR SALE" & "ICs and Components" sections of this issue. K.BOUFAL-CONSULTING SERVICES, 244 Fitzwater Street, Philadelphia, PA 19147. (215) 925-6469.

PCJR Get 640k PP, CC, for \$310 comes with ram disk software, 2year mfg warranty. Other k available. Paul Rau, 260 N. Lincoln Way, Dept. CS, Galt, Calif. 95632 209-745-2696 10-71

(186) MODEMS

1200-BAUD WESTERN electric modem module provides direct connect to phone line. Two for \$100, with schematic. This is an excellent value for

the technically-oriented hobbyist who wants high-speed modem communications. Digital Search, 803-877-9444.

BULLETIN BOARDS IN NORTH AMERICA. You've tried teh rest, now try the best! Our directory is used by Byte magazine, IBM, Xerox and many others. Quality versus quantity! Over 700 listed by state, area code and computer type. Each listing commented. \$5.95 postpaid or subscription 1 year (4 issues) \$16. BBS Directory, Box 4150-CS, Vero Beach, FL 32964-4150. 305-231-0912.

FREE - Public Domain Software for IBM PC (small charge to cover s/h cost \$5.95/disk) Modem Line 818-352-0254. Data Carrier Corporation, 3704 1/2 Foothill #104, La Crescenta, CA 91214. 9-71

FREE! SHOP by Modem! Call our innovative electronic shopping center, Fantasy Plaza, by Modem (818)840-8066. 11-79.

STEAL A CLASSIC! Hooking In: The Underground Computer Bulletin Board Workbook and Guide. A classic for your library. Rave Reviews! Includes current Active BBS Directory: 1000+ verified numbers. \$16.95 retail. Only \$5 steals 186 page book and directory. Cash, check, MO. ComputerFood, Box 0681, Oracle, AZ 85623. 11-71

VIDEOTEXT SEMINAR & CB party - Miami Beach, Jan. 10-12, 1986. EMAIL 74375,1602 on CompuServe, RENEGADE on People Link or write PO Box 640411, Miami, FL 33164-0411.

VOLKSMODEM 12 300-1200 Hayes compatible. Used once. \$150, add-post. S. Mills, 4615 Orleans Blvd., Jefferson, LA 70121. 504-733-9611. All add-post.

Western Electric 2048A 4800 Baud Modem, never Used, \$450. Len (212)777-4353.

(187) WORD PROCESSING

IBM system 6-450 word-processing system complete with mag cards manuals and supplies. Susan J. Trout, 8 Old Littleworth Rd., Dover, NH 03820 10-70

WANTED: USED Processors, Computers - IBM, Xerox, NBI, Lexitron, CPT, Wang Etc. Call Exsel Incorporated, Used Office Automation Specialists, 716-325-5530 1-800-624-2001 4-74

WORDSTAR COMMANDS on thirty-two 3x5 Roladex(tm) cards. Indexed with command summary & correct syntax. \$12.95 (PP & MBG). Brian Lewis, 6423 Caracara St., Sarasota, FL 34241. 10-74

(188) MISC. EQUIPMENT

100 mHz Logic Analyzer Biomation K-100D-Accepts 16 Logic Signals with 1024 Word memory. Good Cond., w manuals, but less probes, \$2200. Len (212)777-4353.

3BUTTON MOUSE - Hawley Mark II Like New/Original carton. Specs w/list of available interface boards. 200 pp resolution. Sample interface schematic From Cad/Cam system. New \$250/Asking \$90. Includes shipping Cont. US. DATA PROCESSING SERVICES, 339 Barton Place, Menlo Park, CA 95024. 8-73

BOARDS: QUADLINK Apple/IBM, \$225. AppleCAT II, \$140. Epson FX-80+ with Dumping GX \$250. Koala Pad \$50. Amdek RGB (early) \$25. All mint. Hal, 415-661-6958.

Buying Computer and Electronic plate, all types precious metal's including higher and lower grade gold and silver industrial or electronic findings, circuit boards gold and silver coins, coin collections, jewelry and diamonds. No shipment too small. Fast confidential cash payments, Phone 404-881-9833 Ship: Stephen West, 1020 Peachtree, N.E. Atlanta, GA 30309 10-72

COMPURPRO INTERFACER 3 Bds. Each board has 8 serial ports, brand new \$250.00 ea. Call 309-764-4344 ext. 219. Ask for Greg. 10-71

COMPUSCAN 170 document reader. All the electronics thereto. Includes 30A isolation transformer, several power supplies, BRPE tape perf, Ecco tape

reader, six-foot desk with integral keyboard, over 1,000 socketed TTL chips, all documentation, Eco, and schematics. Interfaces with Nova 1200. Will deliver New England, \$200 OBO. Weaver, 500 Webster Street, Rockland, MA 02370.

CP/M CONFIGURED for Xerox 820-1, or BBI: for 8" SSSD drives - \$105; for 5 1/4" SSSD drives - \$135. Used, tested 820-1 board plus CP/M, \$250. Some parts available for 820-1. Service and operators manuals, 820 ROM monitor which will use printing terminal connected to serial port as keyboard and printer, 820 double density, plus more. Users group disks (8" SSSD) for CP/M available at reasonable costs. Call or write for flyer: 217-453-2345. Wilcox Enterprises, PO Box 395, Nauvoo, IL 62354. 7-71

DURANGO COLT 64Kb, 2 DSDD disk drives with printer, complete business software, package originally \$8000. Now \$1000. 216-499-7644.

"HOW TO GET RICH WITH YOUR MICROCOMPUTER" reveals the facts you need to make your computer pay for itself! SEcrets revealed, potential tax break, an exciting book for only \$12 plus \$2.50 shipping/handling. Guaranteed. Rogers Publishing, Box 36042, Indianapolis, IN 46236. 11-71

Junkman Will Buy! I buy old scrap IC's, relays, circuit boards, diodes, any mixed junk, gold plated, transistors, connectors, dirty, broken, smashed or useless electronic junk - any amount! 1930 to 1985. Nothing refused! 10 years in business. Pack in boxes and ship UPS. Fast payment! **JUNKMAN**, 103 Saratoga St., Lawrence, Mass. 01842. 9-73

KEYBOARDS. Microswitch. Hall-effect, real high quality. ASCII. Works great with "Big Board" New \$45. Used \$25. Digital Search 803-877-9444.

MINDSET WANTED. Send information, capabilities, prices on hardware and software available. User group address? Publications? Write: **Joe Sonneman**, 324 willoughby, Juneau, AK 99801.

MOLECULAR COMPUTERS WANTED CALL **RODD 718-469-3057** 10-72

OracleDB - PAPERClipWP \$20 each Printshop \$20, Eight archades \$45., disks. Special 13' programs \$20. Check/M.O.: **AVERA NATIONAL LIBRARY**, 2632 NEW YORK, NY 10009 or 212-420-0953. 5-72

PRINTER SWITCH. Parallel or serial, assembled \$75.00, kit \$45.00. Postpaid, **Phonix Data Systems**, 3701 Division St., Suite 222, Metairie, LA 70002 10-72

Surplus Government electronics for sale. O'Scopes, typewriters, signal generators, radars, tape and video recorders, multimeters, monitors, power supplies, lasers, computers, resistors, capacitors, transistors and much, much more!! Millions of dollars worth of electronics for 5 cents on the dollar or less. A must for the electronics hobbyist on a budget. For more info call **John** at 805-485-1578. 9-73

TTY MODEL 35 KSR ASCII 110 BPS well maintained. RS232. Documentation. Will deliver New England \$75 OBO. **Weaver**, 500 Webster Street, Rockland, Mass 02370.

Tektronix 485 \$3600.00, and up Tek. 7613 \$2450.00, also 465b \$1550.00, H/P 5245L with 5253b \$550.00, Calibration available B.C.E. (213) 375-3006, 422-6135. 10-70

WANTED - Documentation for a SYKES Comm Stor II., electronic mail box. Contact **George Herzog**, 200 Monterey #11, Brisbane, CA 94005. 10-71

WICAT 150, 3 user UNIX or WMCS, Pascal, C, FORTRAN, M68000 based w/10MB hard disk, terminal. Best Offer. **Agent Systems**, 214-351-3442.

(189) BOOKS, MAGAZINES

BUY PLAYBOY, Hustler, adult mags. old adult films, photos, victorian strippers, 1950's erotica books. **Fellman**, Box 8688, Tampa, FL 33604.

COMPUTER RELATED books, magazines, Byte Personal Computing, Popular Computing, Infoworld, Family Computing, Computer Electronics. One or two com-

plete subscriptions of each. **SASE** for list. **Glenn Blizzard**, 614 Hollywood Ave., Suffolk, VA 23434. 10-70

HOTTEST NEW PUBLICATIONS! "Secrets of a Consultant" and "How to Get Rich With Your Microcomputer." Free catalog, write: **Reports-01**, PO Box 308, Hadley, MA 01035. 11-72

PEOPLE TALK manuals for KAYPRO, \$8. **WORDSTAR** quick ref flip charts, \$5. User guides to CP/M \$4. Power of Visicalc, \$4. Epson HX-20 idea book, \$5. Epson QX-10 tech manual, trouble-shooting manual, diagnostic programs, TPM-II users guide, programmers guide to VALDOCS, and operations manual all for \$95. Call 219-259-2041.



REPO'S-BANKRUPT

Computers, Auto's, Real Estate, RV's, equipment. Nat'l monthly magazine listing all RB property at bargain \$1. Also large new-used classified for your "For Sale" items listed Free all year. \$25 annual subscription and your listings for 12 monthly issues. Sample send \$3 and your listings to: **NRLS**, 217 E 1st Suite 4, PO Box 187C, Hutchinson, KS 67504. 316-669-1072.

SOFTWARE SHOPPER is here! Buy, sell, trade your software. News, features, low ad rates! Sample \$1: Box 187-C, Fraser, MI 48026. 7-71

STEAL A CLASSIC! Hoeking In: The Underground Computer Bulletin Board Workbook and Guide. A classic for your library. Rave Reviews! Includes current Active BBS Directory: 1000+ verified numbers. \$16.95 retail. Only \$5 steals 186 page book and directory. Cash, check, MO. **ComputerFood**, Box 0681, Oracle, AZ 85623. 11-71

Government Contracts
Tired of working for someone else? Here's the information you need to get started in your own business on a government contract. This package includes where to get a complete listing of thousands of available government contracts including those set aside exclusively for small businesses. From janitorial contracts to maintenance for computers such as the IBM PC. For information call **John** at 805-485-1578. 9-73

Turbodocs Made Easy 198pg. Guide to this versatile Multi-user Operating System. Pub. 1984 @ \$24.95 Special Offer-\$8.50 pp. Quantity Pricing Avail. **Len Dworkin**, 874 B'way, New York, NY 10003

(190) MISC. LARGE SYSTEMS

MAXICOM XL 32 USER 160 MEG MPM NETWORK \$14,450!

MAXICOM XL Multiuser computer. Complete with 160 meg. Marksman hard disk, 32 Z80 AP cards, operatin gsystem, 30 day guarante. **BCE 202-944-3900**.

State of the art **GERBER PC-800**, Model-3. Artwork generator for sale with optional Digitizer. All together for low price of \$40,000. **CALL 301-477-8124**. 10-70

Wanted: Good used CDC - 9448 cartridge module disc drive Also, good used **Dynabyte Microcomputers**, Call (505)393-8836 10-71

(191) CP/M SOFTWARE

1000's of FREE SOFTWARE programs for over 80 computer formats including IBM, CP/M & COMMODORE from the **Public Domain Users Group**. Over 4400 members worldwide. For information send SASE to: Public Domain Users Group, 1442-C2, Orange Park, FL 32067.

\$47 ACCOUNTING SOFTWARE! Little Accountant That Can maintains 100 personal or product accounts, prints statements, records expenses under 12 redefinable categories, and prepares summary reports (instant tax preparation). Ideal for small and home-based businesses. Available in Kaypro (compiled) and MBASIC versions, specify computer. **Dennis Gimlin**, Little Software That Can; 7322 Oak Manor-37, San Antonio, TX 78229. 512-349-3924. 9-71

CP/M 2.2 learn all the secrets. Fully com-

mented, nothing left to the imagination, supplied on 8" disk. All memory locations revealed. Contains CCP, BDOS. Also a "souped-up" Z80 version. 100s of satisfied customers. Send \$50 to "Source," PO Box 63, Greer, SC 29652-0063.



CP/M ENHANCEMENT UTILITIES

Enhance your CP/M 2.2 system with these Turbo Pascal programs: file comparison, character string search, file encrypter/decrypter, word and byte counter, WordStar to ASCII file converter, file printer, binary file dump, and source code lister. Turbo Pascal source and help file included! 14.95 pp check or money order. **Osborne 1 (CP/M 2.2)** format. MGB. Quality for less from: **TT Inc.**, 4419 Holland, Suite 103, Dallas, TX 75219. 10-71

CPM PEACHTREE software for Epson QX-10. Telecommunications, Spelling

Proofreader and mailing list manager all three for \$30. **CPM 8" Peachtree** general ledger and accounts payable for \$90. Call 219-259-2041.

CRYPTOGRAMS

Do you enjoy solving cryptograms? This program takes care of all the housekeeping. All you do is think. Solve puzzles, sve them, make your own, print them. Even gives hints when you're stuck. 300 cryptograms included. Available in PC/MS-DOS or CP/M versions. Specify your machine or disk format. Only \$10. (If you would like the program listing. \$20). **Puzzles**, 1404 Woodtone Drive, West Chester, Pa 19382, (215)399-0963. 11-75

CUSTOM WORDSTAR patches for ouyr Epson printer. Get boldface, double strike, underlining, double width, scripting, italics, compressed and more for only \$9.95. Send check or money order to: **S.M. Urban**, RD #1 Box 431K, Palmyra, PA 17078. 11-73

FILE TRANSFER "XLINK" allows 2-way transfer of any type disk file over RS232

up to 4800 baud. Specify disk formats for source and destination computers. Excellent utility for only \$29.95. Send check or money order to: **S.M. Urban**, RD #1 Box 431K, Palmyra, PA 17078.

GOING OUT OF BUSINESS SALE

The following CP/M programs will be available only for the next 60 days while I still have the equipment to make copies for distribution. These programs are available on Heath hard sector disks, Z100 CP/M soft sector disks, and standard CP/M 8" disk formats. Add \$2.50 for shipping and handling and 7% sales tax in NY.

STARCAT.COM

STARCAT lists those celestial objects visible from a user specified location, and displays the siderial time, RA, DEC, Hour Angle and other data for these objects. Find in your night sky:

- Nebulae
- Messier Objects
- Binary Stars
- Variable Stars
- Galaxies
- Clusters

Or, enter the object's location and let **STARCAT** identify it. The supplied data base contains hundreds of objects.

WALKER ELECTRONICS CO.

3521 Hacienda, Dallas, Texas 75233
214-339-4916

10 MEG HARD DISK SYSTEM SASI

DTC 520 controller. Seagate 412. 10 mb CDC 9409, 80 trk., DSDD. w/PS in an attractive case \$495*

FLOPPY DRIVE SPECIALS \$39.95*

MPI 51S Full Hgt.
Tandon TM50-1 1/2 Hgt.
MPI 501C - 1 + - 2 1/2 Hgt.
All Drives Fully Checked!

DISK DRIVE CASES

5 1/4" Horiz. mt. w/PS
Single Hard \$97.50*
Dual Hard \$149.50*
Dual Floppy \$119.50*

DTC 520 CONTROLLER BOARDS

Handles two hard drives or equiv. or up to 4-5 1/4 floppy drives w/manuals \$175*

DISK DRIVE CASES

w/Power Supplies
Vertical Mtg.
2-5 1/4" 2/3 Hgt. \$65*
2-5 1/4" Reg. Hgt. \$65*
2-5 1/4" 1/2 Hgt. \$65*
1-5 1/4" Reg. Hgt. \$55*
1-5 1/4" Hard Dr \$80*

CORCOM - FUSED CONNECTORS 6VI1

\$2.00 ea. min. order of 5

FLOPPY DRIVE POWER SUPPLY KITS

Dual \$21.50
Single \$17.50
Board assembled w/trans-
former, power cable, AC
cord. * Shipping Paid *

MONITORS

15" Amber or green. Ball BC 500. High resolution. 1200 lines. 15,750 or 19.20 KHZ Horiz. New in orig. cartons. 32 MHZ Bandwidth. Requires 24 VDC @ 1.5A ... \$95*
12" Green screen Ball equiv. 22 MHZ Bandwidth. Requires 12-15 VDC at 1 amp. 15.750 KHZ Horiz. \$50*

Both of these are excellent for 820, Big Board, etc.

TERMINALS

15" Amber or Green screen. Modern swivel base. Low profile Keytronics keyboard. 75-19.200 baud. RS232C ports. Cursor controls, Num. pad. 80x24 display. Excellent definition. Can interlace, w/manual \$225*
12" Green Screen. 80x24 display. In attractive case w/separate keyboard. 75-9600 baud, cursor controls, num. pad. No parity ck. RS232C ports, w/manual, 30 day warr. \$139.95*

PRINTERS

Centronics 152. New in orig. packing. 150 cps w/manuals \$425*

FANS

New orig. packing. IMC 110 CFM, Ball Bearing, 4 1/2" \$10*
IMS 3 1/2" 43 CFM \$10*

KEYBOARDS

Keytronics, serial or parallel, low profile, cursor controls, num. pad, functions IBM compatable. Excellent for any system! New \$90*

POWER SUPPLIES

Switcher +5 @ 6.8A +12 @ 2.6A, =24 @ 1.4A, -12 @ .300 ma. \$35*

DRIVE CASES

New! For 2-5 1/4" Reg. Hgt. Drives. These are very good quality ... \$17.50*

DUPLEX RECPT. HUBBEL 5252

\$.50 ea. Min. order of 20*

* Add \$2.00 each item for packing plus shipping. Texas residents add 6% sales tax.

selected for amateur observations, and is user expandable \$31.95

EPOCH.COM

EPOCH updates the coordinates in STARCAT's data base, making corrections for the earth's precessional motion. Epoch's ten minutes of run time will make your data base more current than published star atlases. \$19.95

LOANPAY.COM

LOANPAY is a convenient loan amortization program. Use LOANPAY to calculate monthly payments, or to determine monthly/yearly payments to interest and principal. This program is tax deductible if used to prepare your 1040 tax forms. \$19.95

SOURCE CODE

STARCAT.BAS EPOCH.BAS
*LOANPAY.BAS. The well documented Microsoft BASIC source listings for the

COMPUTERS ETC.

Eagle PC2 512K, w/mono 2drv... \$1475
WYSE PC 512K, 2drv: 14" mono \$1699
WYSE PC 512K, 10MB fpy mono \$2799
SEVILLE/IPC cloneBD 512K A&T... \$599
ZORBA porbl 9" \$849, w/Z80 sw \$999
PCJR sidecar 512k, PP, clk/cal... \$399
PCJR sidecar 256k, PP, clk/cal... \$339
PCJR 2nd Drive adptr \$99, w/drv \$335
IBMPC Convert 108+ dif formats... \$99
IBMPC Media Master 70+ formats \$42
Z100 Media Master 70+ formats \$42
Peach Tree 5" IBM Inventory #8... \$88
CP/M sw: SPELL(ing checker) \$45
Omnicoder Z80 Macro Assembler \$90
C80 MathPak \$27, C/80 C. lang... \$45
Math OSBRN1 \$17, OSBRN1 Games \$32
LGRAFI-IT 021 reqs MX80 printer \$32
My Chess \$33, Bowling \$21, Lisp 80\$37
OSBRN/dd MediaMstr 22+ FRMTS \$32
ZorbaPb Domain 13dks \$78, PCBBlue \$6
Libraries: SIGM, UCSD, OSBRN, "C"
Shipping is extra on hardware
Z-EIGHTY DATA SYSTEMS
Box 28355CS, Cols. OH 43228-0355
Evengs 614-279-8271 CKCCR VISA/MC

SERVICE DIRECTORY

Classified listing of services, publications, consultants and business opportunities. Listing by subject. Vendor classification not available. Standard classified rates and policies apply.

1985 DIRECTORY OF PROFITABLE MICROCOMPUTER VENTURES. Start your own home-based business with the help of this easy-to-follow information-packed publication. You'll get start-up tips, effective promotional advice and a set of detailed income-producing plans. Put your equipment to work for you now! Price: \$9.95. COMPU-GUIDE PRESS, Dept. CS, 82 Pine Grove, Kingston, NY 12401. 10-71

\$200-\$500 PER DAY!

WHILE HAVING FUN with your computer. I do it! You can too! Fully detailed report, only \$9.95. Order Now - set up in time for Christmas! Mike Savin, 7744 Pickering Ave., Whittier, CA 90602. 11-71

DISK DRIVE REPAIR. Why pay for a service contract when you know will go down first?? Remove the drive yourself and save money. Call us for the lowest fixed rates on repair and alignments for most 8", 5 1/4", P.C.'s, portables, compatibles, Apples, ... since 1981. ISR, 3 day turn around. JOHN LOEFFLER, (512)467-7085. 10-72

DISKETTES!!!! 5 1/4 SSDD diskettes 99¢ each!!!! DSDD only \$1.10 each!!!! Diskettes shipped in quantities of 10 only. Shipping: (10 disks - \$1.50, 20 & up-\$3.00.) MI residents add 4% sales tax. Order from: A&S SOFTWARE, box 457-CS, Lakeview, Mi. 48850.

EARN MONEY, part or full time, at home with your computer. 50 page manual with business forms. Money back guarantee, \$9.95, JV Technologies, P. O. Box 563, Ludington, MI. 49431 10-74

ENTREPRENEURS!!

MAKE \$\$\$-SAVE \$\$\$ with On-Line shopping!! Be a member or seller of new on-line services. Offers both quality name brand products and services not offered on other services. Access nationwide with local numbers. 24 hr. convenience to world of information. FREE DETAILS:

\$50 each. These tutorial programs will teach the novice and intermediate programmer how to write large, reliable programs in Microsoft BASIC. With little modification, these programs will run on HDOS systems, Z100's, IBM compatibles and other equipment which executes BASIC by Microsoft. Specify paper listing or CP/M disk format. Bruce Bennett, Mountain Software Co., 2620 Schuyler Rd., Marietta, NY 13110 Phone: (315) 673-4393 Eves. 11-71

Get Public Domain Software the easy way! Rent our User Group Library, and copy thousands of useful programs at home! Call 619-941-0925 or SASE to National Public Domain, 1533 Avohill, Vista, CA 92083. 6-70

KAYPRO educational programs for high school and college, value \$200, only \$35. ADS general ledger program for Kaypro was \$595 now only \$175. Call 219-259-2041.

MAXICOM XL 32 USER 160 MEG MPM NETWORK \$14,450!

MAXICOM XL multi user computer. Complete with 160 meg Marksman hard disk, 32 Z80 AP cards, operating system, 30 day guarantee. BCE 022-944-3900.

MODEM7 For 20+ CP/M COMPUTERS. Diskette conversions to and from Apple, IBM and CP/M. Free list. Softhaus, Box 4150-E, Vero Beach, FL 32964-4150. 305-231-0912. 10-70

Metasoft Benchmark (wp + Mailist) 8" \$75.00, Magbase II data Base Mgr. 8" CP/M 80, \$50.00 Hayden Basic Acctg (GL-AP-AR-PAY) 8" CP/M 80 \$150.00. Len (212)777-4353.

PERFECT PACKAGE still available. Writer, Speller, Calc, Filer and Lessons with documentation. Kaypro format but

Thomas Walton, POB 51, Mt. View, MO 65548. 9-79

MAKE 2,000 a month with your micro computer be your own boss. Report \$5.00. Wilson Programming Enterprises, P.O. Box 94453, Des Moines Iowa 50394 10-74

Make Your Computer pay for itself! Computer business kit reveals how. Regular \$18, now \$14. Guaranteed Home Business News, P. O. Box 482C1, Jackson, OH 45640. 11-71

PC Board Designs. Professional documentation service will provide PC board artwork and/or photographs for single, double, and multi-layer PC boards, using CAD equipment for professional results. Documentation available for schematics, wiring, diagrams, flow charts, etc. Call or write Chuck Davis, Custom Circuit Designs, P.O. Box 224, Dayton, OH 45449 513-866-6209 10-71

PRINTED CIRCUIT ARTWORK. If you're tired of doing PC artwork, send me your circuit and I'll provide hi-quality single/double-sided artwork master/s or even negatives! Personal, professional service, excellent results, reasonable prices. For free information call: Peter A. Sarro, 250 West 54th St. Suite 800, New York, NY 10019, 212-928-9419, 10am - 5pm. 6-70

Government Contracts

Tired of working for someone else? Here's the information you need to get started in your own business on a government contract. This package includes where to get a complete listing of thousands of available government contracts including those set aside exclusively for small businesses. From janitorial contracts to maintenance for computers such as the IBM PC. For information call John at 805-485-1578.9-73

Would you like to earn \$30.00 an hour with your personal computer and belong to a nationwide organization of small to medium sized data processing companies. Also, sell namebrand computers, printers, and software. Business can be operated out of your home. Send \$3.00 for information brochure to Computer Data Services, Inc., Suite 315, Treadway Towers, Dover, DE 19901. 9-70

YOUR OWN Home Computer business. 101 exciting new ways you can have fun making money in your spare time. Report \$4.50. Associated Research, Box 22485A, Houston, Texas 77227. 7-71

transfers well to other CP/M systems. \$75. Wordstar 3.3 for Xerox and DEC VT-180 \$100. Peachtext, Peachcalc and Speller \$40 each. 8" Peachtree Accounts Payable, Sales Invoicing and Gen. Ledger, \$100 each. Armor Systems Excaliber Series \$250/module. S. Mills, 4615 Orleans Blvd., Jefferson, LA 70121. 504-733-9611. All add-post.

Turbodots Made Easy 198pg. Guide to this versatile Multi-user Operating System. Pub. 1984 @ \$24.95 Special Offer-\$8.50 pp. Quantity Pricing Avail. Len Dworkin, 874 B'way, New York, NY 10003

(192) MISC. SOFTWARE

25¢ PROGRAMS for your "Apple." Hundreds to choose from. Educational, business, scientific, games and more. Catalog: \$3 (refundable with first order.) Public Domain Library, Box CS2, Duncan Institute, 18 Duncan Drive, New Port Richey, FL 33552. 11-76

CHRISTMAS SPECIAL. 20 original program packages written in basic. Each includes listing, cassette, and instructions. Magic Crayon, Master Math, Micro Musician, and others. \$34.95 for all or \$2.50 each. Call or write for flyer and information. Compumate, 16 Old Country Rd., Oxford, CT 06483. 203-888-9601.

COMPUQUEST ADVENTURES. Full length text adventures, direct for less! From the depths of the oceans to the impenetrable mountain heights and beyond, Try the Magic of Compuquest. 48K ATARI*, APPLE II Series*, COM-MODORE 64*, 48K SPECTRUM+, (*Disk, + Cassette). Mappits for all games only \$1.50@. Catacombs of Doom \$13.95. City Beyond the Light \$16.96. Ghostly Greycastle Manor \$17.95. Jungle Fever \$12.95. Sea Lock \$14.95. Transported \$15.95. World of Ward Dree \$17.95. Zaridian's Fortress \$15.95. Great Christmas Buy! Why Pay More? \$3.00 S&H. WI res. 5% tax. Information SASE. Compuquest, Direct Order Center, Box 492, St. Croix Falls, WI 54024. We support our products! 11-72

EDUCATION, SMALL BUSINESS, and Home Applications Software. More than 6000 programs available at low prices. Pre-school, elementary, high school, college level, business education, office and accounting applications. Send for free personal catalog. Specify type of software desired and your computer type. We have Apple, IBM, Commodore software and others. Schools and institutions welcome. Write to Elkhorn Computers, Box 906C, Baker Oregon 97814.

KNOWLEDGE MAN a fully integrated information management (software) system; version 1.07. PCDOS format. Barely used, \$200. Call 703-920-0548.

Try some Public Domain Software for the price of a disk! 8" or 5 1/4" just \$5 pp. Mention computer type. Send to National Public Domain, 1533 Avohill, Vista, CA 92083. 6-70

UNIQUE TECHNICAL & business programs. Instruction in all phases of computer use and design. Write for details: Marine Institute, 100 College St., Clarksville, VA 23927. Consulting engineers since 1967.

Used Software Available. For Commodore 64, Atari, and Apple. All in excellent condition, many with original manuals and packages. Good prices! For a price list send a SASE to: George Bailey, 6474 Highway 11, DeLeon Springs, Florida 32028, 904-985-4594. 10-72

WANTED: Computari "Financial Wizard" and swifty "Swiftly Utilities" software for Atari 800. C.T. Huth, 130 Hunter St., Tiffin, OH 44883. 8-72

(194) MISC. ACCESSORIES & SUPPLIES

400 FOOT roll of 20 awg 15 conductor cable, \$160 or smaller quantities. Call Jerry, 713-980-9071. 11-72

40 conductor ribbon cable standard size 3M and Berg 1 to 5 foot length (specify) 25 cents per foot plus \$2.00 postage. Santiago, 88 Madison Dr., Newark, DE 19711. 9-70

\$75.00 Tuner turns your monitor (if it has video/audio jacks) into a T.V.! Call 715-248-3709. MC/VISA

9-5" MUFFIN fans iwth screens and cables, \$7 each. 3-3" muffin fans at \$6 each. Call Jerry, 713-980-9071. 11-72

DUST COVERS for Epson printers. Large for MX/RX/FX-100 and LQ-1500 only \$7

each. Small for MX/RX/FX-80 only \$5 each. Ribbons for MX/RX/FX-100 are \$6. Serial interface for Epson RX/FX printer \$45. Call 219-259-2041.

RIBBON CABLE, 50 conductor, 100 ft. rolls, \$50 or smaller quantities at slightly higher. Jerry, 713-980-9071. 11-72

(195) INTEGRATED CIRCUITS AND COMPONENTS

\$22 TOUCHTONE DECODERS Commercial grade 16 digit Telaris/Collins 7640-01. 12 VDC, built-in dial tone reject and high-low filtering, selectable hexadecimal/high-low outputs. 32 pin hybrid IC. Never used, guaranteed. Price includes decoder, crystal socket, full documentation, UPS. Call/write for brochure. Electrovalue Industrial, Box 376-TCS, Morris Plains, NJ 07950. 201-267-1117. 7-77

MICRO - WONDERLAND. Second anniversary of our aggressive expansion. Custom ICs for Commodore computers (see our ad in "COMMODORE COMPUTERS FOR SALE" section of this issue). DRAMS, SRAMS, EPROMs (see our ad in "MEMORY" section). New CMOS melody ICs, analog delay ICs, CPUs, peripheral, digital/analog etc. Now we are able to beat any prices. 8088, 8087, 80287 etc. IBM ICs sets. Thousands ICs by mail. Fast delivery. Quality parts. Hundreds satisfied customers. Free 64k - 15ns dram sets with orders. Need any ICs? Don't call us first - call us last & save. Volume buyers - tell us what you're paying. We are here to sell you parts. Catalog - \$2.50; S.A.S.E. #10 (\$0.44 stamps) brings Flyer. K. BOUFAL-CONSULTING SERVICES, 244 Fitzwater Street, Philadelphia, PA 19147. (215) 925-6469.

Need Parts? Resistors 1/4 w/5%, discs 3¢, electrolytics, more. All new. Stamp for big list. Jay Janisse, 460-CS Selfridge, Colorado Springs, CO 80916

Paying \$5.00 per pound for scrap tantalum capacitors. Any amount, fast payment! Ship: Sciuto, 103 Saratoga St., Lawrence, Mass. 01842. 9-79

Power Pack Coleco +5 V 900 MA., 5V 100 MA., +12 V 300 MA....\$4.00, Power Transformers Triad F-341X, 110/220 Pri, 25.2 V 2 Amp. sec. \$2.50 ea. Len (212)777-4353.

(196) HELP WANTED

DISTRIBUTORS NEEDED TELEPHONE TERMINALS

Initial release of the telephone, 64K computer, modem, and 7" screen for less than your current rental phones (two extensions included). T & T, 3223 Latham, Rockford, IL 61103.

EARN \$1000 TO \$5000 monthly selling simple services performed by your computer. Work at home in spare time. Get free list of 100 best services to offer. Write Pitel Company, P.O. Box 22165 UPR Station, Rio Piedras, PR 00931. 11-72

Herbalife, Amway, Shaklee, all MLM distributors! This opportunity only comes once in a lifetime! Send name, address, phone to: JMB, Dept. C, P.O. Box 997, Sugarland, Texas 77087-0997. 9-71

Original Home/Business Software for your TI-99/4A from Asgard Software.88, Bellefontaine, OH 43311. 7-75

RESUMES By Mail. Confidential & Professional Service. For Free Info Write To Amert, P.O. Box 188, Bellefontaine, OH 43311. 5-75

Unprecedented Opportunity Complete one-stop Shopping and Information service via home computer offers ultra MLM income opportunity! Unlimited \$\$\$ potential. Lucrative incentive programs. Keep your own hrs. Save Time, Money and Energy by putting a world of convenience at your fingertips!

Free Details: DARTON, POB 3176, Redwood City, CA 94064. 6-70

Unprecedented Opportunity Save Time, Money and Energy by putting a world of convenience at your fingertips! Complete one-stop Shopping and Information service via home computer offers ultra income opportunity! Great \$\$\$ potential. Lucrative incentive programs. Keep your own hrs. Free Details: DARTON, POB 3176, Redwood City, CA 94064. 6-70

(198) POSITIONS WANTED

(199) OTHER

Computer Business For Sale. Home operated mail list service w/wo Tandy 2000 or any MS/DOS computer \$2400. 614-988-2331 after 5 pm. 11-71

DATA PROCESSORS - Over 125 names of Florida companies who use data processors. Not an agency. Contact L.F. Cole, Dept. CS2, Box 8234-A, Orlando, FL 32856 10-71

FREE ADVERTISING. Programmers, software publishers, retailers. List your software with us. Referral service for commercial software. SASE. Westlakes Software Services, Box 458038-CS, San Antonio, TX 78280-8038. 11-71

Floppy Disk computer repair most 5 1/4" \$40; 8" \$60; LaBOR & parts passed with diagnostic printout. C64 \$40; 1540, 1541 Drives \$50. Labor & parts. Computer Technical Repair, 1102 W. 17th St. #107, Santa Ana, Calif. 92706. 11-72

Make Your Computer psy for itself! Computer business kit reveals how regular \$18, now \$14. Guaranteed. Home Business News, Box 482C1, Jackson, OH 45640. 11-71

NatinServ Online Information Network 618-847-2291. Jobservice, down loads, play games, shopping mail, classifieds, message center, etc. NationServ, P.O. Box 391, Fairfield, IL 62837 11-72

Programmers! Advertise and sell your software. No charge unless you sell. Call BBS, 919-455-1809. or write: Software, 4C Jupiter Trail, Jacksonville, NC 28540. 11-75

Trans-Lux Teleprinter Model 2K/TLT like new. No reasonable offer refused. Phone 305-422-7297.

We buy maintenance user's manual on computer equipment, peripherals, and terminals. Lone Star Data Corp. 512-340-6811. 11-81

(200) NON-COMPUTER

HI-TECH FEVER: LP cassette or computer songs, \$7.95 plus \$2 shipping/handling. Ivon Fergus, Box 15628, Harrisburg, PA 17105.

LASER AND Nightvision surplus. Parts and complete units. Free catalog. Meredith Instruments, 6517 West Eva, Glendale, AZ 85302. 7-77

Penny Stocks, New Issues-Free. Information, J.P.C., Box 18089, Dept. CS, Orlando, FL 32860

SATELLITE TV COMPONENTS - Discount prices by mail order. Install yourself and save. Instruction and alignment booklet available. Please write or call for price list. Lee Beeder Cameras, 4670 Hollywood Blvd., 141 Hollywood, CA 90027 213-666-9778. 9-70

T.V. Notch filters, free brochure. O.K. Video, P.O. Box 63/6025, Margate, FL 33063 11-75

Venture Capital available for any worthwhile project. Please write: VENTURE ENTREPRENEURS INTERNATIONAL, Box 225, Blue Bell, PA 19422. 9-72



American Semiconductor®

computers ★ components ★ hardware ★ software

**TOLL
FREE**

MATH COPROCESSORS

80287 175.
8087-2 119.
8087-3 99.

DYNAMIC RAM

64K 64Kx1 150ns .79
128K 128Kx1 for AT 3.50
256K 256Kx1 150ns 2.85
256K 256Kx1 120ns 3.85

STATIC RAM

6116 LP-3 1.90
2Kx8 150ns
6264 LP-15 4.00
8Kx8 150ns

EPROM

2732A 4Kx8 250ns 2.25
2764 8Kx8 250ns 2.25
27C64 8Kx8 200ns 4.25
27128 16Kx8 250ns 3.00
27256 32Kx8 250ns 7.25
27C256 32Kx8 250ns 15.50

TAPE BACKUP SYSTEMS

Cipher 5210 859.

25mb external
XT, TI, AT, Tandy, Corona, Compaq

Erwin 449.

10mb internal

SOFTWARE

Lotus 1-2-3 342.
Flight Simulator 39.50
Saragon III chess 39.50

10mb 1/2 height 245.
low power, 1 yr. warranty

10mb Kit 1/2 height 395.
low power,
1 yr. warranty

dual controller card & cables

(10 now, 10 later)

10 + 10 425.

this kit allows you to have
10mb now and add another
10mb or 20mb later without
the need for additional
controller cards & software.
Just slip in and away you
go. 1 yr. warranty

20mb hi speed 435.

for AT, XT, Corona,
Compaq, Tandy, AT&T.,

20mb hi speed KIT 535.
low power,
1 yr. warranty

dual controller cards & cables

30mb hi speed 899.
XT, AT compatible

DSDD drives 79.

full or 1/2 height, Schugart

AT Turbo kit 99.

Dual Winchester
controller card 159.

controls up to 2 hard
drives up to 60mb each.

For AT or XT
PERSYST mega
memory

300 B modem

UPS 300W
with search protecton

AT 360K floppy

AST-6 pack +
IBM 135 watt
power supply

Monochrome
cards

Compaq
Deskpro 286

Teac Floppy
1/2 height

Graphics
color cards

Hercules
color card

MONITORS

300A

12" hi res amber 138.

310A

12" hi res amber 159.

CABLES

COMPU CABLE

IBM/AT

9 pin serial

Port to Hayes
modem

IBM/EPSON 20.

IBM
PC's, XT's, AT's
and
HARD DRIVES
REPAIRED

All new prime
parts.

All merchandise
guaranteed.

1-800-237-5758

SALES EXT. 805

VENDOR LINE 813-949-3193



Add 3%



TECHNICAL INFO. LINE
813-949-1590

V.I.P.C. "THE PRICE CONNECTION"

FREE DELIVERY • TOLL FREE ORDER LINE • SHIPPING DAILY

V.I.P.C.-XT SYSTEM

IBM XT COMPATIBLE SYSTEM FEATURES: 256K RAM, SUPER XT MOTHER BOARD, TEAC 55-BV DRIVE, CONTROLLER CARD, COLOR CARD, 135 WATT POWER SUPPLY, FLIP TOP CASE, IBM STYLE KEYBOARD. FULLY ASSEMBLED AND TESTED. SPECIAL PROMOTIONAL PRICE. **ONLY \$699.00**

SUPER XT MOTHER BOARD AS IN V.I.P.C.-XT SYSTEM, 8 I/O SLOTS, 0-256K RAM, 8088 CPU, OPTIONAL 8087, COMPLETELY ASSEMBLED & TESTED. ZERO K **\$179.00** 64K RAM INCREMENTS (NINE 4164-150 NS) **\$9.99**

AMERICAN XT MOTHER BOARD, SAME FEATURES AS SUPER XT MOTHER BOARD, FOUR LAYER P.C. BOARD, ACCEPTS 4164 & 41256 RAM CHIPS, UP TO 1 MEGABYTE RAM ON BOARD! COMPLETELY ASSEMBLED & TESTED. **\$289.00**

IBM PC/XT HARD DISK AND ACCESSORIES

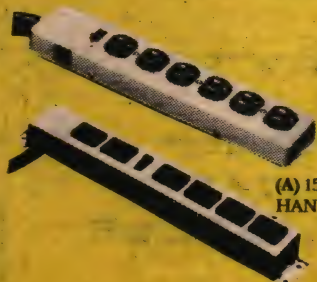
TEAC 55-BV 360K D/S D/D 1/2 HEIGHT	\$85.00
TEAC 55-FV 720K D/S QUAD DENSITY 1/2 HEIGHT	\$109.00
TEAC 55-FGV IBM "AT" 1.2 MEGABYTE DRIVE	\$129.00
OMEK OM5AT 360K IBM "AT" DRIVE, BEIGE FRONT PLATE	\$139.00
SHUGART SA-455 360K D/S D/D 1/2 HEIGHT	\$85.00
IBM "AT" HARD & FLOPPY MOUNTING RAILS (PAIR W/HARDWARE)	\$6.00
COMPAQ HARD & FLOPPY DRIVE MOUNTING RAILS (PAIR W/HARDWARE)	\$9.00
MICROSCIENCE 10 MEGABYTE HARD DRIVE WITH WESTERN DIGITAL X2 CONTROLLER CARD & CABLES. PREFORMATTED	\$469.00
MICROSCIENCE 20 MEGABYTE HARD DRIVE WITH WESTERN DIGITAL X2 CONTROLLER CARD & CABLE. PREFORMATTED	\$669.00
WESTERN DIGITAL X2 (NEW MODEL) WITH CABLES	\$129.00
DTC 5150 BX CONTROLLER CARD WITH CABLES & KIM 11 BIOS	\$149.00
KIM 12 BIOS EPROM CHIP AVAILABLE ON REQUEST. PLEASE CALL.	
COMPUTER PERIPHERAL 7-PAC MULTIFUNCTION BOARD. FEATURES 0-384K RAM, SERIAL, PARALLEL, CLOCK, CALENDAR, RAM DISK, PRINTER SPOOLER, BACK-UP BATTERY W/OVERCHARGE PROTECTION. SOFTWARE UTILITIES DISK INCLUDED. TWO YEAR WARRANTY. ZERO-K	\$149.00
V.I.P.C. COLOR CARD RGB, COMPOSITE, RF MOD & LIGHT PEN OUTPUTS	\$99.00
V.I.P.C. MONOCHROME GRAPHIC CARD WITH PARALLEL PORT	\$125.00
V.I.P.C. FLOPPY CONTROLLER CARD WITH DRIVE CABLE	\$69.00
V.I.P.C. 135 WATT POWER SUPPLY WITH ALL POWER CABLES	\$99.00
V.I.P.C. IBM XT TYPE FLIP TOP CASE & MOUNTING HARDWARE	\$59.00
V.I.P.C. STANDARD KEYBOARD W/IBM STYLE LAYOUT & FUNCTIONS	\$69.00
V.I.P.C. DELUXE KEYBOARD W/CURSOR PAD KEYTRONICS 5151 STYLE	\$99.00
KF-RGB COLOR/AMBER/GREEN ALL IN ONE. HI-RES MONITOR	\$419.00
PRINCETON PGS MAX 12(E) TTL AMBER MONOCHROME MONITOR	\$169.00
IBM PARALLEL TO CENTRONICS PRINTER CABLE. FULLY SHIELDED	\$12.49
CENTRONICS TO CENTRONICS PARALLEL CABLE. FULLY SHIELDED	\$14.49
IBM KEYBOARD EXTENSION CABLE. SPECIAL PRICE ONLY	\$3.00

64K RAM MEMORY UPGRADES

4164-150 NANO SECONDS OR FASTER, SET OF (9), TESTED & GUARANTEED	\$9.99 PER SET
AS LOW AS 75¢ EACH IN LARGER QUANTITY	\$CALL
IBM MATH COPROCESSOR CHIP, INTEL 8087-3, NEW "1985" MANUFACTURER DATE CODE: 100% TESTED & GUARANTEED	\$115.00
130 WATT HEAVY DUTY POWER SUPPLY WITH FAN, REPLACES ORIGINAL IBM 65 WATT UNIT, SAME MOUNTING SPECS & DIMENSIONS, ONLY	\$119.00
PRINTER SWITCH BOX AB-25 SERIAL DB-25 BOX	\$59.00
PRINTER SWITCH BOX AB-36 CENTRONICS PARALLEL BOX	\$79.00

A.C. POWER STRIP

SIX OUTLETS WITH SURGE PROTECTION, CONSIST OF (M.O.V.) METAL OXIDE VARISTOR AND SPIKE DETECTORS, U.L. LISTED COMPONENTS, SIX FOOT GROUNDED CORD, OPTIONAL WALL OR FREE STANDING MOUNT, LIGHTED POWER SWITCH INDICATOR. USE FOR ANY ELECTRICAL APPLICATION.



(A) 15 AMP CIRCUIT BREAKER, 1800 WATT POWER HANDLING.....\$14.99

(B) 10 AMP REPLACEABLE FUSE, 1250 WATT POWER HANDLING.....\$11.99

APPLE ACCESSORIES

APPLE DISK II TYPE DRIVE MITAC AD-1 SHUGART SA-390 MECHANISM (SAME AS APPLE) 100% COMPATIBLE FOR ALL APPLE II, II+, & IIE COMPLETE WITH MATCHING CASE & CABLE, READY TO PLUG IN, SPECIAL ONLY	\$125.00
NEW MITAC AD-3C DISK DRIVE FOR APPLE IIC EXTERNAL DRIVE JUST FOR APPLE IIC, NO CARDS NEEDED! ATTRACTIVE DESIGN, COLOR COORDINATED WITH IIC, CASE. PRECISION DIRECT DRIVE, DIRECT CONNECT 19 PIN CABLE, JUST PLUGS IN: 100% HARDWARE & SOFTWARE COMPATIBLE WITH APPLE IIC: FULL 1 YEAR WARRANTY, SPECIAL ONLY	\$139.00
DISK CONTROLLER CARD FOR 1 OR 2 DRIVES II+, IIE	\$35.00
16K RAM LANGUAGE CARD UPGRADE, 48K II & II+ TO 64K RAM	\$35.00
PRINTER CARD WITH CENTRONICS PARALLEL CABLE II+, IIE	\$35.00
GRAPPLER PLUS TYPE GRAPHICS PRINTER CARD W/CABLE II+, IIE	\$59.00
#1 BEST SELLER, THOUSANDS SOLD, FULL ONE YEAR WARRANTY Z-80 CPM MICROSOFT SOFTCARD EMULATOR, RUN WORDSTAR, MAILMERGE, D-BASE AND OTHER Z-80 CPM BASED SOFTWARE, SPECIAL ONLY	\$39.00
80 COLUMN CARD WITH INVERSE VIDEO CHIP VIDEX TYPE II+	\$49.00
EXTENDED 80 COLUMN WITH 65K RAM FOR APPLE IIE, ONLY	\$59.00
RS-232 SERIAL CARD 0-19, 200 BAUD RATE WITH DB-25 CABLE	\$39.00
ZOOM NETWORKER 300 BAUD MODEM W/SOFTWARE, PLUG IN CARD	\$79.00
NOVATION APPLE CAT 1200 BAUD MODEM W/SMARTOON SOFTWARE	\$389.00
SUPER SERIAL RS-232 COMMUNICATION CARD WITH DB-25 CABLE	\$89.00
EPROM BLASTER FOR 2716, 2732, 2764 & 27128 TYPE CHIPS	\$69.00
POWER SUPPLY HEAVY DUTY 5 AMP APPLE REPLACEMENT UNIT	\$55.00
COOLING FAN WITH SURGE PROTECTION U.L. LISTED COMPONENTS	\$24.99
JOYSTICK MACH III W/FIRE BUTTON, SPECIFY APPLE II, IIE, IIC	\$35.00
KOALA PAD WITH MICRO PAINTER SOFTWARE FOR APPLE IIE & IIC	\$69.00
JOYSTICK IIE, IIC, (9 PIN) TO II, II+ (16 PIN) CONVERT CABLE	\$9.00

APPLE COOLING FAN

SURGE PROTECTED COOLING FAN, QUIET, EFFICIENT, JUST CLIPS ON SIDE OF APPLE II, II+ & IIE COMPUTER, U.L. LISTED COMPONENTS. LIGHTED FRONT POWER SWITCH, DUAL AUXILIARY OUTLETS, POWER CORD

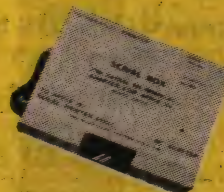
\$24.99



NEW APPLE IIC SERIAL TO PARALLEL BOX

RUN YOUR EPSON/GEMINI CENTRONICS PARALLEL TYPE INPUT PRINTER FROM YOUR APPLE IIC SERIAL PORT. ADAPTER INCLUDES ALL NECESSARY CABLES AND HARDWARE, COMPLETE WITH WARRANTY & INSTRUCTIONS

\$59.00



VERBATIM DATALIFE SALE

AS LOW AS \$1.40 EACH SS/DD
\$1.65 EACH DS/DD



LIFETIME WARRANTY DISKETTES

& STORAGE CASES

10 DISKS PER BOX/10 BOXES PER CASE	PER BOX	PER CASE
MAXELL MD-1 SS/DD 5 1/4"	\$15.49	\$145.00
MAXELL MD-2 DS/DD 5 1/4"	\$19.99	\$185.00
MAXELL MD-2HD 96 TPI (IBM AT 1.2-1.8 MEG.)	\$45.00	\$390.00
MAXELL MF-1 3 1/2" (MACINTOSH DISK)	\$30.00	\$270.00
VERBATIM DATALIFE SS/DD 12-PACK	\$17.99	\$169.00
VERBATIM DATALIFE DS/DD 12-PACK	\$21.99	\$199.00

OUR OWN V.I.P.C. QUALITY DISKETTE. 1,000,000'S SOLD!

5 1/4" SS/DD DISKETTE WITH HUBRING, ENVELOPE, WRITE PROTECTION TABS ALL INCLUDED, SOLD IN PACKS OF 25. ALL OF OUR DISKETTES ARE 100% CERTIFIED BOTH SIDES. **ONLY 88¢ EACH.** 5 1/4" DS/DD DISKETTES, 100% CERTIFIED BOTH SIDES. **ONLY 99¢ EACH.**

NATIONAL TOLL FREE LINES

(ORDERS ONLY)

CA ORDER LINE CALL **800-232-9090**

USA ORDER LINE CALL **800-222-5657**

UPS SHIPPING DAILY

EASTBAY
ORDERLINE

(415) 881-1772

WESTBAY
ORDERLINE

(415) 341-2425

ORDER INFORMATION:

WE SHIP ANYWHERE IN CONTINENTAL USA DAILY VIA UPS

CALIFORNIA RESIDENTS INCLUDE 6.5% SALES TAX

C.O.D. ORDERS ADD \$2.00

FREE SHIPPING ON ORDERS OVER \$100.00 (UPS GROUND SERVICE ONLY)

ORDERS UNDER \$100.00 ADD \$2.00 SHIPPING/HANDLING CHARGES

WILL CALL SERVICE AVAILABLE AT OUR HAYWARD OFFICE BY APPOINTMENT ONLY

ALL MERCHANDISE IS 100% FACTORY WARRANTED.

PRICES AND AVAILABILITY SUBJECT TO CHANGE WITHOUT FURTHER NOTICE. PAYMENTS ACCEPTED IN CASH, CHECK, MONEY ORDER OR C.O.D.

C.O.D. ORDERS OUTSIDE CA. ON CASH/ CASHIERS CHECK BASIS ONLY

PURCHASE ORDERS ARE GLADLY ACCEPTED AND EXPEDITED.

V.I.P.C. 384 Jackson Street, Suite 1, Hayward, CA 94544

Zenith makes the best compatible, AB makes them the best value!

More than just price, we will not be undersold!

call or send
for our
NEW
Fall Catalog



- 1** **2 DS/DD 360K Disk Drive**
384 RAM Memory, Amber 20 MHz Monitor P13
Built in ROM Diagnostics, 1 Expansion Slot
CZF-148-42BU 1,350
- 2** **One Plus**
7 Expansion Slots
CZF-158-42BU 1,850
- 3** **One Plus**
Hard Disk System, 20 Meg Winning 1/DS/DD 360K
384 RAM Memory, 8 MHz with 7 Expansion Slots
CZW-158-42BU 2,429

- 4** **New Advance Technology PC
IBM PC/AT Compatible**
Single DS/DD 1.2 Meg Disk Drive
512K RAM, Serial Parallel
Amber 20 MHz Monitor (P13)
Expandability for up to 12 simultaneous users
CZF-241-81 2,995
- 5** **Four Plus**
Hard Disk System
Same as above including 40 Meg Hard Disk
CZW-241-82BU 4,795

- 6** **Portables** Zenith Quality IBM Compatible
Back Lit Screen 8 MHz
2 Standard DS/DD/360K Drives
640 x 200 Dot Graphs
14.3 lbs, 250K RAM
CZ171-42 1,995
- 7** **Trans Portable**
2 DD 360K Drives
8 MHz Clock, 128K RAM
24.2 lbs.
CZF-138-21 1,299

Canon
Laser Beam Printer
Many Advantages over HP,
No Additional Cost, Quantity Discounts
IBM Parallel Interface
It can THINK! It's a Diablo 630
4 Resident Fonts
Downloadable Fonts
Choose number of copies from keyboard
or software
For BEST PRICE Call

Canon A-40
Impact Dot Matrix Printer
Near letter quality 23 x 18 matrix
140 cps
3 kinds of Graphic Image
Selectable Linefeeding
IBM Printer Compatible
Push Feed Adjustable Tractor
Fanfold Single Sheet &
Multipart Copy Paper Usable
Many More Features Only \$259

Multifunction Card
PRICE BREAKTHROUGH
2 Serial Ports
Game Port
Printer Port
Real-Time Clock-Calendar
Ram Disk
Print Spooler
With 384 RAM \$229
3 or more \$199

**UNIVERSAL
PRINTER
STAND**
Reg.
\$169.
**REDUCED
TO
\$99.99**



SOFTWARE
for IBM, Macintosh Apple
All Major Brands
25% - 40% Off
Call for pricing.
Corporation users' volume
purchase contracts available.
Call for money saving details

USI



Hi Res. Metal Cabinet
1-9 79
10-19 70
20 up 68
Large Qty. Call

BUILD YOUR OWN P.C.

PC-XT Mother Board
IBM™ Fully Compatible
8088 Micro-Processor
with 8087 Math Pros Socket,
8 I/O Slots, 256K On Board Memory
Assembled & Tested Board & All Components
1 - \$229 3-4 \$219 4-10 \$200
Over 10 Call
IBM is a trademark of International Business Machines

PC Case
with Hinged Top
Easy, Quick Access
Fits IBM PC/XT
Mother Board
Hardware for Mounting
2 - 4 Drives
Quality Case — All Metal

Enhanced Keyboard
for IBM PC
Enlarged Return
Key & Shift Key
LED Indicators on
Cap's Lock &
Number Keys
Fully IBM Compatible

135 WATT Power Supply
• 4 Drives Power Plugs
• Side Switch Model
like IBM
1 - \$109
2-3 \$105
4-10 \$100

**PC PLUS™ Add-Ons for
IBM™ PC & Compatibles**
• Disk Controller Card 69
• Disk I/O Card (2 Ser, Par, Click & Gme) 149
• Parallel Printer Card 39
• Hi-Res Mono Card 79
• Serial Card 49
• Game Adapter 29
• Color Graphics Card 89
• Color Card/Parallel Port 119
• Mono Graphic Card/Printer Port 129
• Speaker 2.00
• I/O Plus Card 89

PC-XT Compatible Includes
640 K RAM, 2 - DS/DD Disks 360 K
135 Watt Power Supply
2-RS232 Serial Ports
1 Parallel Port
Real Time Clock - Cal Bat Backup
RAM Disk, Print Spooler
Assembled & Tested! Everything you need
except Monitor & Card
1 - \$1,059 2-3 \$1,000 4-10 \$975
20 Meg Version \$1,575

HARD DISKS
10 Meg 299
20 Meg 499
30 Meg Call
85 Meg Call
WD Disk Controller 190

MODEMS
Hayes ANCHOA
..... Call

POWER DEVICES
Datashield backup power source
200 PC-200 watt 265
300 XT-300 watt 390
Trip 425 433
Brooks 6 Outlet-Surge Suppressor/
Noise Filter 54

AST
Six Pack Plus 239
I/O Plus II 139
Advantage - AT 399
Graph Pak 599
MonoGraph Plus 399
Preview Mono 299
PC Net Cards 379
5251/11 On-line 799

QUADRAM
Quadport-AT 119
Quadmeg - AT (128K) 349
The Gold Quadboard 449
The Silver Quadboard 239
Expanded Quadboard 219
Quad 512+ 229
Liberty 309
QuadSprint 499
QuadLink 399
Quadcolor 1 199
QuadJr Expansion Chassis 469
Expansion Chassis Memory 199
Quadmem Jr 199
Chronograph 79
Parallel Interface Board 64

Hercules
Modular Graphics Card 279
Multi Display Card 299
Five Pack C.S. 189

PARADISE
Graphics 319
Color 169

OKIDATA
82, 83, 84, 92, 93, 182, 2350, 2410,
Okimate-20 Call
Okimate (Specify C64 or Atari) 199

star
SG10/SG15 (120 cps) 239/399
SD10 (180 cps) 359
SD15 (160 cps) 479
SR10 (200 cps) 499
SR15 (200 cps) 639
Powertype Letter Quality 319

AMDEK
300 Green/Amber 129, 149
300 Color/Audio 259
310 Amber IBM-Plug 169
Color 500 Composite/RGB 389
Color 600 Hi-Res(640x240) 439
Color 700 Hi-Res(720x240) 499
Color 710 Long Phosphor 579

CITOH
Prowriter 7500 219
Prowriter 8510P 299
Prowriter 1550P 469

EPSON
RX-100, LX-80 Call
FX-85+, FX-185+ Call
LQ 1500, JX80 Color Call
Homewriter 10 Call
NEW! LX-90, SQ-2000, DX-10,
DX-20, HS-80 Call

**MicroFazer
Printer Buffers**
ME parallel Epson 8K 135 16K 145
32K 165 64K 195
MP parallel 8K 145 16K 155
32K 175 64K 205
MSP ser-parallel 8K 165 16K 175
32K 195 64K 225
MSS ser-serial 8K 165 16K 175
32K 195 64K 225
MPS par-serial 8K 165 16K 175
32K 195 64K 225

ZENITH
ZVM 122/123 79
ZVM 124 IBM Amber 149
ZVM 130 Color 269
ZVM 131 Color 249
ZVM 133 RGB 429
ZVM 135 RGB/Color 459
ZVM 136 RGB/Color 599
1220, 1230, 1240 Call

TAXAN
115/116 12" Gm/Amb Mono 99
121 Green TTL 139
122 Amber TTL 149
210 Color RGB 239
400 Med-Res RGB 319
415 Hi-Res. RGB 399
420 Hi-Res. RGB (IBM) 429
440 Ultra Hi-Res. RGB 589

PAPER
9 1/2" x 11" Keen Edge 29
9 1/2" x 11" Standard 27
14 1/2" x 11" Standard 38
20 lb - other weights available
2700 sheets per case

ORDERING INFORMATION: Order by check, Mastercard or VISA. Personal checks take 15 days to clear, no waiting on certified checks or money orders. Add 3% shipping and handling on all orders (minimum \$2.00) Mail, APO FPO. Air may require additional charges. PA residents add 6% sales tax. MA residents add 5%. All items subject to availability. Prices subject to change. Additional discounts available to qualified educational institutions. Requests for bid on volume requirements invited.

Since 1976

**AB
COMPUTERS**

Use our TOLL FREE Order Line Mon-Fri 9am-6pm EST

800-822-1211
In PA: 215-822-7727

252 BETHLEHEM PIKE, COLMAR, PENNSYLVANIA 18915

We support Apple,
Macintosh,
Commodore,
IBM & compatibles



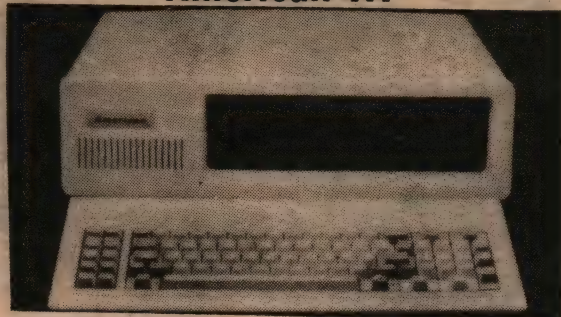
Customer Service
215-822-7727

AB SATISFACTION GUARANTEE

Every product sold by AB Computers is factory packed and comes with the manufacturer's warranty. However, if an item is defective when received, you may return it to us within 15 days for repair, adjustment or replacement at our option. Returns must be accompanied with copy of your invoice, letter detailing defect, blank warranty card and all original factory packing. To expedite handling, please call for return authorization number. (Sorry, no return on computer software once opened.)

DISK RIOT
DS/DD AS LOW AS
99¢
**AB
DISKETTES**
with Media Mate
Amaray Disk Library
Media Mate 8.95
Rip N File 25 18.50
Rip N File 50 22.95

American XT



American XT Personal Computer American XT Computer System Unit

Highlights Include:

- 256KB user or random access memory (RAM) standard...expandable up to 1MB on the system board (640KB DOS accessible).
- 8KB permanent or read only memory (ROM), which contains the BIOS and 56KB user usable.
- High-performance, high-speed, 16-bit 8088 microprocessor.
- Eight expansion slots that allow easy system expansion by using optional plug-in adapters.
- Two 360KB slim line diskette drives to support single-sided or double-sided, double-density, 5¼ inch diskettes.
- Optional 10MB or 20MB fixed disk drive.
- 135W power supply 110V/220V switchable.
- Four layer mother board to increase system reliability.
- Speaker for audio and music applications.
- Power-on automatic self-testing of system components.

Keyboard

American XT computer comes with a slim, lightweight keyboard. It features:

- An 84-key, typewriter-like format to help make it easy to learn and operate the system.
- A six-foot coiled cable that allows convenient movement of the keyboard.
- Power, caps-lock and num-lock LED indicators.
- A 10-digit, calculator-like numeric keypad for entering numbers quickly and easily.
- 10 special function keys to save time in activating commonly repeated tasks.
- A special "print screen" key that enables you to print out anything that appears on your display screen at any time.
- Typing angle can be adjusted to suit your working position.
- Optional enhanced keyboard with separated cursor and numeric keypad.

Hardware Specifications:

Size: width—20", depth—16", height—5.5".

Weight: without diskette drive—21 lbs.; with two drives—28 lbs.; with hard disk—33 lbs.

User Memory: cycle time—410 nanoseconds; access time—250 nanoseconds.

Environment: air temperature—60°F to 90°F system ON, 50°F to 110°F system OFF; humidity—8% to 80% system ON, 8% to 80% system OFF; noise levels-59dB (without printer); electrical—120V/220V AC, 60/50 cycles, 200 watts.

Software.

Runs all the popular programs written for the IBM PC/XT using the MS-DOS version 2 operating system.

System Specifications:

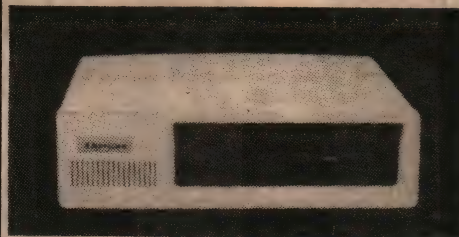
- **Model 1, Basic System.**
 - ☐ 256K bytes random-access memory (RAM).
- **Model 2, Office System.**
 - ☐ 256K bytes random-access memory (RAM).
 - ☐ Two diskette drives with controller.
 - ☐ Color graphics card or monochrome card.
- **Model 3, Business System.**
 - ☐ 640K bytes random-access memory (RAM).
 - ☐ Two diskette drives with controller.
 - ☐ I/O plus with serial, parallel, game port and battery backup real time clock.
 - ☐ Color graphics card or monochrome card.
- **Model 4, Professional System.**
 - ☐ All the features of model 3 plus a 10MB fixed disk drive.
- **Model 5, Executive System.**
 - ☐ All the features of model 3 plus a 20MB fixed disk drive.

Introducing the most COMPATIBLE & AFFORDABLE

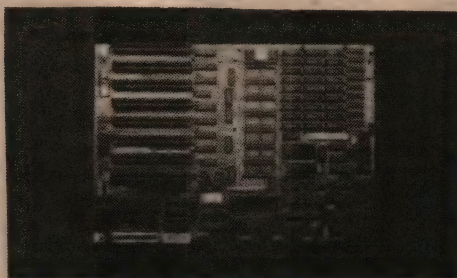
Desktop Computer

American XT/AT

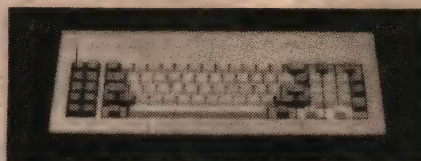
The Perfect Solution



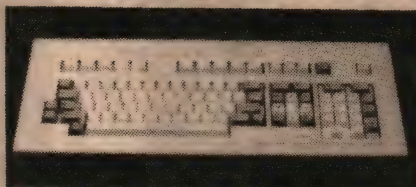
American XT Computer System Unit



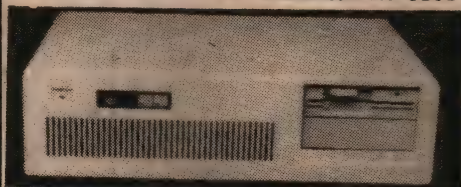
American XT Mother Board



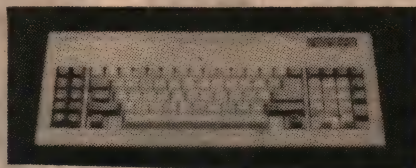
American XT 5150 Keyboard



American XT 5151 Keyboard

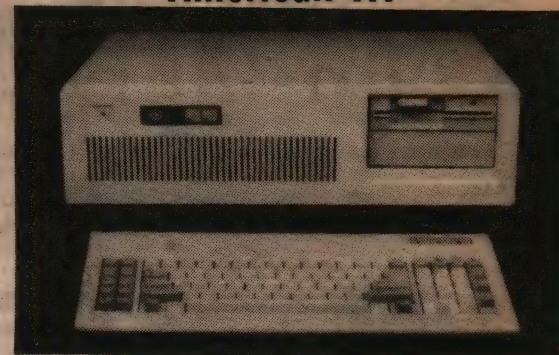


American AT Computer System Unit



**Regional
Distributors & OEM
Inquiries Welcome
Manufactured by:**

American AT



American AT Personal Computer American AT Computer System Unit

Highlights Include:

- 512KB user or random access memory (RAM) standard...expandable up to 4MB by adding memory feature cards.
- 64KB permanent or read only memory (ROM), which contains the BIOS.
- High-performance, high-speed, true 16 bit 80286 microprocessor.
- Eight expansion slots that allow easy system expansion by using optional plug-in adapters.
- 1.2M high capacity disk drive to support 5¼ inch diskette.
- 200 watts power supply 110/220V switchable.
- Battery backup for CMOS configuration table and real-time clock.
- 7-channel direct memory access (DMA).
- 16-level interrupt.
- Three programmable timers.
- Speaker for audio and music applications.
- Power-on automatic self-testing of system components.

Keyboard

American AT computer comes with a slim, lightweight keyboard. It features:

- An 84-key, typewriter-like format to help make it easy to learn and operate the system.
- A six-foot coiled cable that allows convenient movement of the keyboard.
- Cap-lock, num-lock and scroll-lock LED indicators.
- A 10-digit, calculator-like numeric keypad for entering numbers quickly and easily.
- 10 special function keys to save time in activating commonly repeated tasks.
- A special "print screen" key that enables you to print out anything that appears on your display screen at any time.
- Typing angle can be adjusted to suit your working position.

Hardware Specifications:

Size: width—21.3", depth—17.3", height—6.8"

Weight: without diskette drive—33 lbs.; with one drive—37 lbs.; with hard disk—42 lbs.

User Memory: cycle time—275 nanoseconds; access time—150 nanoseconds.

Environment: air temperature—60°F to 90°F system ON, 50°F to 110°F system OFF; humidity—8% to 80% system ON, 8% to 80% system OFF; noise levels-59dB (without printer); electrical—120V/220V AC, 60/50 cycles, 300 watts.

Software.

Runs all the popular programs written for the IBM PC/XT using the MS-DOS version 3 operating system.

System Specifications:

- **Model 1, Basic System.**
 - ☐ 512K bytes random-access memory (RAM).
- **Model 2, Office System.**
 - ☐ 512K bytes random-access memory (RAM).
 - ☐ One diskette drive with controller.
 - ☐ Color graphics card or monochrome card.
- **Model 3, Business System.**
 - ☐ 512K bytes random-access memory (RAM).
 - ☐ One diskette drive with controller.
 - ☐ Serial/Parallel interface card.
 - ☐ Color graphics card or monochrome card.
- **Model 4, Professional System.**
 - ☐ All the features of Model 3 plus a 20MB fixed disk drive.
- **Model 5, Executive System.**
 - ☐ All the features of Model 3 plus a 40MB fixed disk drive.

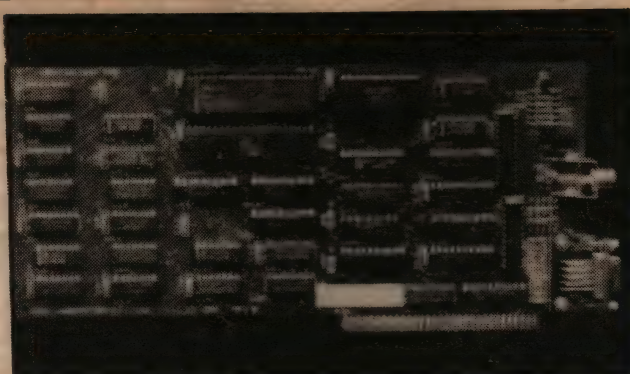
American Computer & Peripherals, Inc.

2134 S. Ritchey St., Santa Ana, CA 92705
Tel: (714) 545-2004 - Sales (714) 545-2098 Service

American ADD-ON

American Color Graphics Card

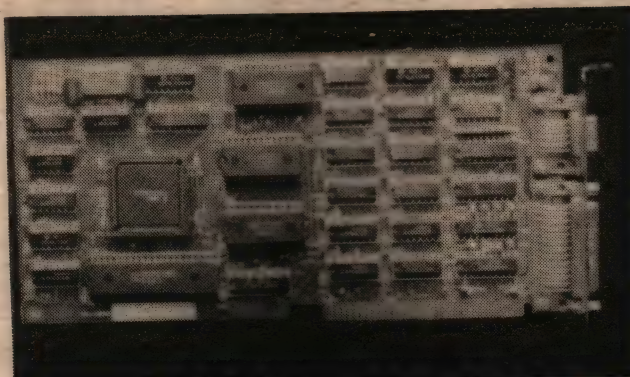
- Use state-of-the art technology GATE ARRAY LOGIC to increase reliability and reduce cost.
- RGB and composite outputs with 640 x 200 pels compatible to IBM standard.
- Light pen and RF modulator interface standard.



American Color Graphics

American Monochrome Card

- Use state-of-the-art technology GATE ARRAY CHIP to increase reliability and reduce cost.
- TTL output 720 x 350 pels with 25 lines x 80 column compatible to IBM standard.
- Built-in parallel printer port.



American Monochrome

Floppy Controller Card

- Can control up to 4 drives.

Monochrome Graphics Card

- TTL Output 720 x 350 pels with 25 lines x 80 column for text mode.
- 720 x 348 pels in Graphics mode compatible to Hercules card.
- Built in parallel printer port.

I/O Plus Card

- Serial, parallel, game ports and real time clock.
- 2nd serial port optional.

Multifunction Card

- 384K RAM Sockets.
- serial, parallel, game ports and real time clock.
- With RAM Disk and PSPool software.

Hard Disk Controller Card

- Control up to 2-20M hard disk

Serial/Parallel for AT

- Serial and Parallel Interface card for AT.

Controller Card for AT

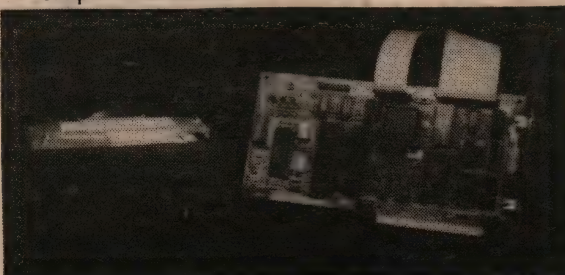
- Control 2-1.2M floppy disk drives.
- Control 2-20/40M hard disk drives.

American HD

American Hard Disk System

10MB Hard Disk System:

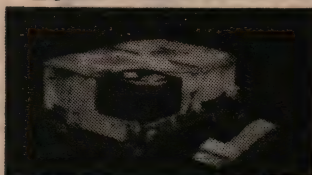
- Formatted and tested.
- Slim line hard disk with controller card.
- Simple installation.



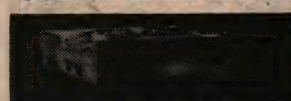
20MB Hard Disk System:

- Formatted and tested.
- Full size panel with controller card.
- Simple installation.

20MB Hard Disk for AT



360KB Drive for AT

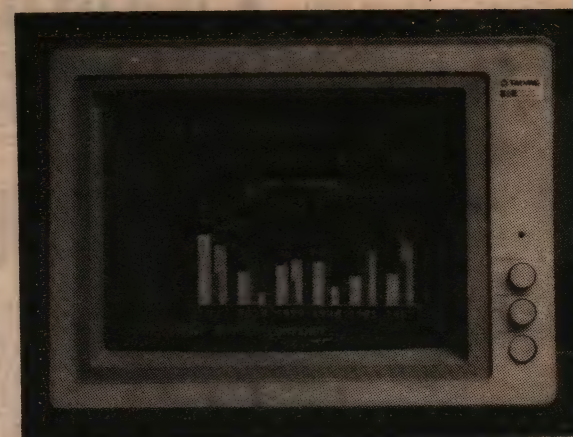


1.2MB Drive for AT



IBM XT/AT is a registered trademark of IBM.
American XT, AT, HD are registered trademarks of American Computer & Peripheral, Inc.

American Monitor



CM-1322

- 13" RGBI color monitor for separate TTL-signal-output personal computer.
- High performance 16 color display, fully compatible with IBM.
- Switching mode power supply for wide range power input low power dissipation.
- Lock type controls on front-panel.
- Dark tinted CRT.



American Modem

American Modem 1200B

- Free PC-Talk Software
- Additional RS232 Serial Port Included.
- Voice and Data jacks with keyboard switching.
- Intelligent-Adaptive-Auto Speed Dial.
- 300/1200 Baud Bell 103/212A.
- Self test at power up.
- Auto redial on busy.
- Call progress monitoring.
- Fully Hayes compatible with enhanced features.

American PS

- 130W/150W Power Supply for IBM PC upgrade. Same dimension as IBM PC.
- 200W Power supply for AT system. Same dimension at IBM AT PS.

American XT/AT Personal Computers & Peripherals Are Distributed by:

P.C. Land, Inc.

Tustin, Calif. (714) 730-6723

PC System Design

Pasadena, CA (818) 792-8889

Ascot Engineering, Inc.

Edmonton, Canada (403) 438-0994

Micro Configuration East, Inc.

Brooklyn, NY (718) 941-2512

Custom Technology

Houston, TX (713) 868-2835

ITM Company

Dedham, Mass (617) 329-5799

CTXT (800) USA-CTXT

Chatzworth, CA (818) 998-6777

Computer Peripheral Warehouse, Inc.

Deerfield Bch., FL (305) 481-2170

(800) 251-2170

RGB Computing

Glendale, CA (818) 240-0422

Analytical Systems Co.

Raleigh, NC (919) 851-8000

House of Cables

Aurora, CO (303) 699-0468

Caltronics

Northbrook, IL (312) 291-1220

Computer Technologies Intl.

PC-XT

INTRODUCING THE ALL NEW P.C.-XT CLONE

Clone



FEATURES:

- * IBM-XT COMPATIBLE
- * 8 EXPANSION SLOTS-100% IBM CARD COMPATIBLE
- * 360K TEAC FLOPPY DRIVES
- * 256K MEMORY UPGRADABLE TO 640K
- * ENHANCED IBM STYLE KEYBOARD WITH NUM AND CAP LOCK LIGHTS
- * 135 WATT POWER SUPPLY
- * INCLUDES MS-DOS 2.11 (LICENSED) WITH MANUALS
- * 1 YEAR WARRANTY PARTS AND LABOR
- * EXTREMELY AFFORDABLE

MONEY BACK GUARANTEE
ASK SALESMAN FOR DETAILS

HARDWARE COMPATIBILITY

HAYES SMARTMODEMS
AST SIX-PAK
QUADRAM QUADBOARD
TECHMAR GRAPHICS
PC-MOUSE
PARADISE 5-PACK
AND LOTS MORE

SOFTWARE COMPATIBILITY

LOTUS
FRAMEWORK
SYMPHONY
DBASE
FLIGHT SIMULATOR
PLUS THOUSANDS OF
SOFTWARE PROGRAMS!!

MONochrome SYSTEM

- * 256K MEMORY
- * MONOCHROME MONITOR
- * MONO-PRINTER ADAPTER
- * 2-360K kb DISC DRIVES
- * MS-DOS 2.11

\$995.00

COLOR SYSTEM

- * 256K MEMORY
- * RGB COLOR MONITOR
- * COLOR GRAPHICS ADAPTER
- * PARALLEL PRINTER PORT
- * 2-360kb DISC DRIVES
- * MS-DOS 2.11

\$1295.00



Toll Free 1-800-222-TECH



PRINTERS

EPSON

RX-80.....218.00
LX-80.....229.00
FX-85.....349.00
JX-80.....499.00
RX-100.....349.00
FX-185.....479.00
LQ-1500.....WOW!!
EPSON ACCESSORIES...CALL

CITIZEN

MSP-10.....299.00
MSP-15.....459.00
MSP-20.....449.00
MSP-25.....599.00

OKIDATA

182.....219.00
184.....639.00
192.....349.00
193.....549.00

BROTHER

HR-10\$279.00
HR-15XL\$369.00
HR-25\$449.00
HR-35\$749.00
2024L\$795.00
M1009\$179.00
M1509 NEW....\$ CALL!
TWINRITER-5\$WOW
BROTHER ACCESSORIES....CALL

C. ITOH

8510A.....279.00
8510 BC1.....329.00
8510 BC2.....379.00
8510 BP1.....329.00
8510SP.....379.00
8510SR.....425.00
8510 SCP.....449.00
8510 SCR.....469.00
1550 BCD.....479.00
1550 P.....439.00
A10-20P.....459.00
F10-40 P/S.....869.00
F10-55 P/S.....1049.00
F10 TRACTOR.....169.00
F10 SHEET FEEDER..349.00

IBM & COMPATIBLE ADD ON CARDS

DISK DRIVE CONTROLLER W/CABLE.....59.00
MONO/PRINTER ADAPTER (MADE IN USA).....129.00
COLOR GRAPHICS/PRINTER ADAPTER (MADE IN USA)129.00
MULTI-FUNCTION CARD W/384K (MADE IN USA)....195.00
MULTI-FUNCTION CARD W/0K-384K.....119.00
SERIAL/PARALLEL I/O ADAPTER COMBO.....69.00
SERIAL I/O W/CLOCK & CALENDAR.....69.00
EVEREX EDGE BOARD.....299.00
1200 BAUD EVEREX MODEM.....199.00
SIX PACK PLUS W/ 64K MEMORY.....229.00
QUADRAM QUADBOARD W/ 0K MEMORY.....189.00
NETWORK CARD (1.2MB/SEC TRANSFER)209.00

HARD DRIVES

10M SUGART W/CONTROLLER.....440.00
10M SEAGATE W/CONTROLLER.....490.00
10M MICRO SCIENCE W/CONTROLLER.....490.00
20M SEAGATE W/CONTROLLER.....545.00
20M MICRO SCIENCE W/CONTROLLER.....595.00

IBM IS A REGISTERED
TRADEMARK OF INTERNATIONAL
BUSINESS MACHINES

TO ORDER PHONE:

TOLL FREE 1-(800)-222-TECH
IN ILLINOIS 1-(800)-222-8324

IN FLORIDA: (305) 274-4741

COMPUTER TECHNOLOGIES INT'L

2020 LINCOLN PARK WEST
CHICAGO, ILL. 60614

EVERYTHING FOR YOUR PC NEEDS EXCEPT THE SOFTWARE

**** November Specials ****

Super PC-XT Complete
Regular 1,950 Special 1,750⁰⁰

Super PC-XT with Printer
Regular 2,350 Special 1,950⁰⁰



214-750-9889

NEW COMPUTERS

Super PC, XT

10 Meg, 1D, D, 256K,
Keyboard, monitor your choice
of amber or green. — Com-
plete hardware system, no ex-
tras needed.
.....\$1,950.00

8" Quantum

	1	2+	
2010	219.00	189.00	Call
2040	850.00	799.00	Call
2080	Call	Call	Call

Shugart

DSDD	195.00	Call	Call
------	--------	------	------

Line Protection

6 Outlet full Protection — Reg.
25.00, **Now \$18.50**
150 Watt Battery Back Up —
Reg. 499⁰⁰ **\$399⁰⁰**

Books

Subject	
MS-DOS	\$18.50
Netrality PCs	\$17.95
Symphony	\$17.95
Lotus 1-2-3	\$16.95

Parts

IBM Cards

Parallel	\$62.50
Serial	\$63.50
Floppy Disk Controller	\$65.00
Multi Function 384K (no memory)	\$115.00
Hard Disk Controller	\$155.00
Videocard	\$77.00
IBM type cases	\$65.00

Public Domain Software for IBM-PC

Texas Special \$2⁹⁹/value
(special not available
outside Texas)
send SASE for catalog

Apple Cards

Extended 80 col.....	\$85.00
Networks	\$95.00
Language Card	\$42.00

Chips

	1-10	11-50	51+
16K	85¢	55¢	call
64K	45¢	call	call
256K	\$3.00	call	call

Monitors

	1-3	4+
Video Green	82.00	77.00
Amber	85.00	79.50

Printers

Dot Matrix	from \$200 ⁰⁰
Daisy Wheel ...	from \$349 ⁰⁰

Fall Catalog Now Available Send SASE

Name _____
Company _____
Address _____
City _____
St _____ Zip _____
Tel _____
I Have IBM/Apple/Compaq/Tandy/Altos

Used Equipment Computers

IBM XT	Sold Out
IBM PC	Call
Apple IIe	From \$600 ⁰⁰
Apple IIc	Call
Apple II+	Call
Apple III	Sold Out
Macintosh (512K) + Mouse	Call
Macintosh + Mouse	Call
Tandy 1000, 2DD, Monitor	Call
Xerox 820 II + letter Q printer	\$1050 ⁰⁰
	\$1295 ⁰⁰
Onyx (8001mm) 20 Meg	\$895 ⁰⁰
Onyx Sundance	\$699 ⁰⁰
Kaypro 2	\$2150 ⁰⁰
Sperry PC 100 + 10 Meg	\$450 ⁰⁰
TRS 80 Mdl. 3 2 D.D.	Sold Out
TI Professional	Call
Compaq 10 Meg + 10D	Call
Altos 40 Meg	Call

Mini/Main Frame

DEC PDP 11/15	\$850 ⁰⁰
DEC H960	\$350 ⁰⁰
DEC D211e	\$1240 ⁰⁰
IBM System 3 Mdl 15D	Call
IBM 029	Call

Printers

Epson FX80	Call
Epson FX 100	Call
Apple Imagewriter	\$485 ⁰⁰
Okidata 192	Call
Okidata 83A	\$175 ⁰⁰
Teletype 4D	\$980 ⁰⁰
Diablo 630	Call
Toshiba	\$749 ⁰⁰
Quiet Writer (IBM)	\$455 ⁰⁰
Wang	\$175 ⁰⁰
LA36	

Hard-Drives

Corvus 10 Meg	\$650 ⁰⁰
Corvus Mirror	\$295 ⁰⁰
Corvus Omnet	\$435 ⁰⁰
Nestar 20 Meg + 2 controller cards	\$450 ⁰⁰
for Apple	\$750 ⁰⁰
Nestar 40 Meg + 2 controller cards	Call
for Apple	
10 Meg (ST506 interface)	

**WE ALSO BUY USED AND
SURPLUS ACROSS THE NATION**

NDRC

214-750-9889

SUPER SAVER SPECIALS

KEYTRONICS
KEYBOARD
#5151
\$199.99

APPLE IIe
80 COLUMN
W/64K
MADE IN USA
\$59.95

D-BASE III
IBM
\$369.95

AUTOMATIC
PRINTER
SWITCH
FOR IBM PC
\$119.95

NORTON
UTILITIES
3.0
\$89.99

COPY II PLUS
APL/IBM MAC
\$29.95

SOFTWARE

APPLE	
LIST HANDLER	\$ 54.95
SPELL HANDLER	\$ 42.95
WORD HANDLER	\$ 54.95
HANDLERS PACKAGE	\$118.98
MAGIC OFFICE	\$212.95
MAGIC CALC	\$ 99.00
MAGIC WINDOW 11	\$105.95
ALPHA PLOT	\$ 26.25
DOS BOSS UTILITY	\$ 15.95
DOUBLE TAKE	\$ 23.07
UTILITY CITY	\$ 19.95
APPLE MECHANIC	\$ 19.95
PRONTO DOS	\$ 19.95
TIP DISK UTILITY	\$ 13.95
BEAGLE BAG	\$ 19.95
BEAGLE BASIC	\$ 23.07
SILICON SALAD	\$ 16.95
TURBO TUTOR	\$ 23.07
TURBO PASCAL (Z80)	\$ 36.27
TURBO TOOL BOX	\$ 36.27
BANK ST FILER	\$ 45.95
BANK ST MAILER	\$ 45.95
BANK ST SPELLER	\$ 45.95
BANK ST WRITER	\$ 45.95
DAZZLE DRAW	\$ 39.95
PRINT SHOP	\$ 32.97
SIDE WAYS	\$ 39.60
MIND PROBER	\$ 29.97
SALES EDGE	\$165.95
THINK TANK	\$ 99.00
COPY 11 PLUS	\$ 29.95
MULTIPLAN	\$ 79.95
APPLE SOFT COMPILER	\$119.95
WORDSTAR	\$231.95
WORDSTAR/MAIL	\$324.95
MULTIPLAN(Z80)	\$134.95
TYPING TUTOR 11	\$ 27.95
DOLLARS & SENSE/ie	\$ 79.95
DOLLARS & SENSE/ic	\$ 84.95
SENSIBLE SPELLER	\$ 86.95

IBM	
HOME ACCOUNTANT PLUS	\$ 99.95
FRAMEWORK	\$439.95
DBASE 11 (msdos)	\$339.95
DBASE 111	\$379.95
SIDEKICK	\$ 39.95
BANK ST WRITER	\$ 49.95
PRINT SHOP	\$ 39.95
C COMPILER (PCDOS)	\$239.95
CONCURRENT (PCDOS)	\$199.95
SIDEWAYS	\$ 39.95
MIND PROBER	\$ 29.95
MANAGEMENT EDGE	\$169.95
SALES EDGE	\$169.95
PC PAINTBRUSH	\$ 94.95
PC PAINT BRUSH w/mouse	\$199.99
THINK TANK	\$129.95
LOTUS 123 VER 1.A	\$329.95
SYMPHONY	\$459.95
MAIN ST FILER	\$ 69.95
WORDSTAR 2000	\$324.95
WORDSTAR 2000 +	\$394.95
R-BASE 4000	\$324.95
R-BASE 5000	\$429.95
MICROSOFT CHART	\$169.95
MICROSOFT PROJECT	\$169.95
MS WORD (PSDOS)	\$249.95
DOLLARS & SENSE	
W/FORCAST	\$129.95
MULTIMATE	\$319.95
NORTON UTILITIES	\$ 69.95
(3.0PCMSDOS)	

MACINTOSH	
HOME ACCOUNTANT	\$ 68.95
MACLION	\$261.95
SONG PAINTER	\$ 49.95
PC TO MAC & BACK	\$119.95
SMARTCOM II	\$119.95
HIPPO-C LEVEL 1	\$103.00
HIPPO LEVEL II	\$275.96
THINK TANK 128K	\$ 99.99
THINK TANK 512K	\$169.95
JAZZ	\$399.99
MICROSOFT CHART	\$ 89.00
MICROSOFT FILE	\$125.95
MULTIPLAN	\$125.95
MICROSOFT BASIC	\$100.95
TYPING TUTOR 11	\$ 34.95
MIND PROBER	\$ 29.00
DOLLARS & SENSE	\$129.95
COPY 11 PLUS	\$ 32.95
ONMIS 2	\$219.95
ONMIS 3	\$341.95
DB MASTER	\$113.95
ELECTRONIC CHECKBOOK	\$ 54.95

ACCOUNTING

APPLE	
CONTINENTAL GL/AP/AR	\$169.95
BPI ANY MODUAL	\$269.95
PFS FILE/REPORT/GRAPH/	
WRITE	\$ 84.95ea

MACINTOSH

CHANG AP/AR/GL	\$229.95
MEGA FILER	\$129.95
MEGA FORM	\$199.95
MEGA MERGE	\$ 84.95

IBM

BPI AR/AP/GL	\$399.99
RAGES TO RICHES	
GL/AP/AR/	\$ 89.95
ST OF ART AP/AR/	
INVEN/PAY/GL	\$389.95

COMMUNICATIONS

SOFTWARE	
ASC11 EXPRESS (APL)	\$ 89.00
HAYES TERMINAL PGM	\$ 64.95
HAYES SMARTCOM1 (APL)	\$ 79.95
HAYES SMARTCOM2(IBM)	\$ 99.95
MULTILINK (IBM)	\$339.95
COMPUERVE	\$ 28.95

MODEMS

SMARTMODEM 1200	\$398.95
SMARTMODEM 1200B	\$359.95
MICROMODEM II/E	\$189.95
PROMETHEUS 1200	\$294.95
PROMETHEUS 1200A	
(PLUG IN)	\$298.95
PROMETHEUS 1200B IBM	
NO SFT	\$239.95
AUTO DIAL/ANSWER	
PROMETHEUS MAC/PAC	\$339.95
PROMETHEUS 1200B	
W/SFT	\$288.95
ANCHOR MARK 1	\$ 89.00
ANCHOR MARK XRS232	\$119.95
MARK 1200	\$269.95
VOLKSMODEM 1200	\$199.95

MONITORS

M-O AMBER 12"	\$ 99.95
GREEN 12"	\$ 99.95
TAXAN GREEN	\$125.95
TAXAN AMBER	\$137.95
TAXAN HI/RES RGB	\$495.95
SAKATA COMPOSITE	
COLOR 13"	\$249.95
POLO HI/RES RGB IBM	\$359.95
NEC. RGB	\$299.95

Print Shop
\$32.95

Apple Power Supply
\$ 57.95

S.G.C. is pleased to
announce our
Electronic Shopping
Bulletin Board
Call 415-793-8799
300/1200 Baud
24 hours a day

Modem Special
Prometheus 1200
Option Processor
w/64K buffer
Alphanumeric
Display
only \$479.95

MacIntosh
Upgrades
128-512K
90 Day Guarantee
\$249.95

O-K Ram Card
(no RAMS)
\$79.95

Mac Tote
\$69.95

MacIntosh External
Drive
\$299.95

IBM 1/2 HT
Drives
\$119.95

PRINTERS

STAR MICRONICS SUPPORTS FULL
LINE GRAPHICS
TRACTION & FRICTION FEED
INCLUDED
SWITCH SELECTABLE FOR NLO
30/40/50 CPS
OPTIONAL SERIAL INTERFACE S-M
SD10 2K/160 CPS \$369.95
SD15 16K/160 CPS \$489.95
SG10 2K/120 CPS \$259.95
SG15 16K/120 CPS \$419.95
SR10 2K/200 CPS \$539.95
SR15 16K/200 CPS \$649.95

PANASONIC BOTH TRACTION &
FRICTION FEED
ONE YEAR GUARANTEE
3 MILLION CHARACTER RIBBON/
REINKABLE TO ADDITIONAL 3M/
CHAR
P1090 10" 100 CPS \$239.95
P1091 10" 120 CPS \$299.95
P1092 10" 180 CPS \$439.95
P1093 15" 160 CPS \$619.95
BROTHER LETTER QUALITY
BROTHER HR-15 \$349.95
BROTHER HR-25 \$630.00
JUKI 6100 LQ \$399.95

ACCESSORIES

MACH 11 JOY STICK	\$ 34.95
MACH 111 JOYSTICK	
FIRE BUTTON	\$ 39.95
SAVER FAN	
(SURGEPROTECTED)	\$ 35.95
FLIP & FILE-HOLDS 50	\$ 17.95
DISK BANK HOLDS 50	\$ 10.95
MOUSE MOVER (MAC)	\$ 24.95
SURGE SUPPRESSOR	
4 PLUGS	\$ 42.95
5-1/4 DISK DRIVE CLEANER	\$ 17.95
RF MODULATOR (APL)	\$ 17.95
SWIVEL MONITOR STAND	
11"	\$ 12.95
SWIVEL MONITOR STAND	
14"	\$ 17.95

MEDIA

SONY 3 1/2 (10)	\$ 35.95
MAXELL 3 1/2 (10)	\$ 35.95
CENTRON 5 1/4 (10)	\$ 15.95
GENERIC (10)	\$ 13.95

IBM 132W
Switching Power
Supply
\$145.00

Microfazer
Computer Printer
Buffer
\$175.95

HARDWARE

APPLE	
ALS CP/M CARD W64K	\$253.00
ADD RAM (16K)	\$ 59.95
PRINTER MATE	\$ 49.95
DISPATCHER	\$ 89.95
Z-ENGINE	\$119.95
SMARTTERM 11	\$119.00
VIDEO TERM	\$215.00
ULTRA TERM	\$289.00
SATERN 128K	\$329.95
80 COL/64K	\$ 59.95
GRAPPLER PLUS	\$119.00
TAXAN RGB INTERFACE	\$ 99.00
APRICORN SERIAL CARD	\$ 88.00
VIEW MAX 80 COL	\$129.00
RAMWORKS 128K	\$199.00
RAMWORKS 256K	\$329.00
80COL W 64K & RGB	\$179.95
V-COLOR 7 RGB	\$112.00
PRINT IT	\$ 99.95
FLOPPY CONTROLLER	\$ 59.95
PRINTER INTERFACE/	
CABLE	\$ 44.95
SERIAL CARD	\$ 69.95

AST Multi I/O
\$109

VERSACARD —
Four in One:
SERIAL • PARALLEL • REAL TIME
CLOCK CALENDAR • BSR PORT
SPECIAL
\$159.95

AST Ram Stak
\$559.95

IBM	
MEGAPAK W/256K	\$499.95
MEGAPAK W/128K	\$219.95
MEGAPAK W/256K CLK/SER	\$499.95
MEGAPAK W/64K CLK/SER	\$289.95
MEGAPLUS II PARALLEL KIT	\$ 39.95
MEGAPLUS II SERIAL KIT	\$ 39.95
SIX PAK PLUS GAME PORT	\$ 39.95
SIX PAK PLUS W/64K RAM	\$242.95
MONOGRAPH W/TEXT/	
GRAPHICS	\$459.95
O-K RAM CARD	\$ 79.00

DISK DRIVES

FOR APL I/C, IIe, II+	\$159.95
FOR IBM INTERNAL 1/2 HT	\$120.95
MACINTOSH EXTERNAL	\$299.95
MICROSCIENCE 10 MEG	
WITH CONTROLLER IBM	\$849.95
10 MEG FOR APPLE	
W/CTRL	\$799.00

GAMES

QUESTRON	\$ 39.95
GERMANY 1985	\$ 39.95
NORTH ATLANTIC 86	\$ 39.95
GEOPOLITIQUE	\$ 29.95
WAR IN RUSSIA	\$ 69.95
RFD 1985	\$ 29.95
KNIGHTS OF THE DESERT	\$ 29.95
FLIGHT SIMULATOR II	\$ 39.95
PINBALL	\$ 29.95
MILLIONAIRE	\$ 39.95
BARON	\$ 39.95
TYCOON	\$ 39.95
ZORK 1,2,3	\$ 29.95

GAMES FOR MAC

DEADLINE	\$ 44.95
ENHANCER	\$ 31.95
INFIDEL	\$ 39.95
PLANTFALL	\$ 31.95
SORCERER	\$ 39.95
STARCROSS	\$ 44.95
SUSPENDED	\$ 44.95
WITNESS	\$ 31.95
ZORK 1	\$ 31.95
ZORK 2	\$ 39.95
ZORK 3	\$ 39.95

Double Density,
Double Sided 1/2 HT
Drive for Apple by
Remington Rand.
\$299.95

COMPUTER GOODS

the mail order specialists

700 Mowry Ave., Fremont, CA 94536

R-M-A & Inquiries: 415-791-7091

Orders Only: 800-523-2382 Orders in CA: 800-423-4415

PO's welcome from qualified institutions.
NO SURCHARGE ON CREDIT CARD ORDERS

Terms: All orders shipped UPS ground. Air extra. Calif. residents add 6 1/2% sales tax. Allow 12 days to clear personal check. Prices subject to change without notice. All goods are new, include warranty and are guaranteed to work. Due to low prices and our assurance that you will get new, unused products—all sales are final. We do not guarantee compatibility. Call before returning goods for repair or replacement. All returns subject to 15% restocking fee.

AD #14

AFFORDABLE COMPUTER ACCESSORIES

BY
MAGITRONIC

SWIVEL MONITOR BASE

Swivel 360°, tilts up or down 12.5°.

Two sizes match any brand of monitors from 12" to 18"

12" — #89980

\$9.90

14" — #89990

\$11.90MULTI-
FUNCTION
VACUUM CLEANERDRYCELL TYPE. Mini
Brush for IC Socket!#90050 — **\$6.50**

IBM PC/XT COMPATIBLE MOTHER BOARD

- 8088 16 Bit Microprocessor
- 8087 Optional
- 8 IBM Compatible Expansion Slots
- 8K BIOS Installed
- With 128K installed, expandable to 256K
- Assembled & tested

#92250 — **\$165.00**

IBM COMPATIBLE

- Dual drive floppy disk controller
#92260 — **\$39.00**
- Monochrome graphic printer card - version II
#92270 — **\$85.00**
- Color Graphic Card - 16K memory
#92280 — **\$80.00**
- Multi-function card - expandable to 384K
Serial and printer ports
#92290 — **\$99.00**
- 512K RAM Card - user upgraded
#92300 — **\$59.00**
- RS232 Communication Adaptor
#92310 — **\$35.00**

MULTIPLE OUTLET

UL Approved

Surge protector

6 outlet

3 prong

plug

6' cord

15 amps

#90140

Input: 110/120 volts, 50/60 Hz

Optional 220/240 volts
50/60 Hz. output**\$13.00**

#90155

150 watts
**SWITCHING
POWER
SUPPLY**

GENDER CHANGERS

DB 25-Pin
male to male

#90080

DB 25-Pin
female to female

#90070

both **\$7.95****\$6.95**

**DELUXE
DISKETTE
FILE**

Easy access handle for opening
and carrying. 100 pc. 5 1/4"

#90060 **\$11.95**

DISKETTE DOUBLER —

Converts your single
sided disc into a
double sided
disc!**\$4.95**

• 1200/300 Baud

• Auto Answer/
Auto Dial

• Hayes Compatible

#91990 — **\$175.00**Smar
TEAM
Modem

KEYBOARD COVER

Smoked acrylic dust
cover. Compatible with
Apple II and IBM
detachable
keyboard.

#90110

\$4.90

#90100

THE
MAILBOX

- Will Hold 5-3 1/2" Diskettes
- Made of rigid plastic
- Great for storage

\$.90

INTERFACE SWITCHES

Serial Selector Switch — A/B
allows selection of printer input
from several computers.

#90160

\$29.00Parallel Connector Switch —
switch allows connection from
one peripheral to another

#90170

\$35.00

KEYBOARD

MGK 150 - Keytronic 5150 look-a-like.
IBM PC/XT compatible. Cherry brand
keys. Low profile switches. Illuminated
caps & num. lock.

#90130

\$59.00

"LET YOUR COMPUTER DO THE TALKING"

MURA MODEM — a self contained FSK, (frequency shift keying) telephone interface that allows computers to talk to each other, over ordinary telephone lines. Compatible with all major personal & home computers. Sends/receives AT 0-300 BAUD for compatibility with most time shared computer systems (such as Dow Jones). Error is 10-9 (10 times better than units costing two or three times as much) Suggested Retail **\$79.95**

#10005

NOW JUST **\$18.00**

CASE - For IBM PC-XT Compati-
ble boards. Room for eight ex-
pansion boards and two full
size 5 1/4" floppy drives, side
switching for power supply, and
flip up top.

#90180

\$49.00

KEYBOARD

KB 5151, Keytronic 5151
look-a-like. IBM PC/XT.
Compatible. Cap & Num.
Lock.

#5151

\$99.95

KEYBOARD

5060 AT —
Compatible with
IBM XT or AT. Over
size shift & return key.
Caps, Num. and scrolllock.

#5060 AT

\$89.95

EASY DRAWER

Drawer holds a keyboard up to 2 3/4" H
x 19 3/4" W x 9 1/2" D. Drawer is sup-
ported by ball bearing slides & it ex-
tends to a lock position. Your computer
& CRT may be supported by the steel
platform.

#90190

\$49.00

8510 — 6 ft. IBM computer to printer
round shielded cable. DB25 pin
male to male 36 pin Centronic
male.

#90230

\$9.90

8511
6 ft. General
use computer to
peripheral cable.
(RS 232 serial cable)
DB 25-pin female to DB-25
Pin female.

#90270

\$9.90

MONITOR ANTI-GLARE SCREEN

Reduce excessive glare.
Eliminates eye strain.
Screen made from black nylon
monofilament.Monographic #90210 **\$13.95**Colorgraphic #90220 **\$16.95**

- Game I/O
Card #92850 — **\$29.00**
- Printer Card #92700 — **\$29.00**
- 64K RAM Chips #92830 **\$6.00**

8512-25 6 ft. computer to
printer round shielded cable
(parallel printer cable) 25-pin
Centronics male to 25 pin
Centronics male.

#90265

\$9.90

8512-36
6 ft. computer
to printer round
shielded cable. (parallel
printer cable) 36 pin Centronics
male to 36 pin Centronics male.

#90260

\$11.90

8514 - 6ft. General use computer to
peripheral cable. (RS 232 Serial
cable) DB 25-pin male to DB
25 pin male.

#90240

\$9.90

8515
6 ft. computer
to modem round
shielded cable. DB-25
pin male to DB 25 pin
female. Pins 1-8, 12, 20, 22
are wired. #90250

\$8.50

The Mailbox

5 pc. 3 1/2" disc capacity.
Rigid PS plastic with mailing
label.

#90100

\$.90

8513

6 ft. General use
computer to
peripheral cable
(RS232 serial cable)
DB 25-pin male to
DB 25-pin female.

#90280

\$9.90

THE WHOLESALE OUTLET

DEPT. CS

1 Interstate Avenue
Albany, NY 12205TOLL FREE 1-800-344-4387 (for non-NYS residents). All other
calls & NYS residents - Call (518) 459-7883. (Our 800 # is a
direct line to Order Operators Only who cannot transfer calls).NYS TAX EXEMPT RESIDENTS MUST INCLUDE A COMPLETED AND SIGNED RESALE CERTIFICATE.
CUSTOMER PAYS FREIGHT & HANDLING FOR ALBANY, NY. ALL OTHER ORDERS SHIPPED UPS. C.O.D.

ATTENTION DISTRIBUTORS: ASK ABOUT OUR DISTRIBUTOR PROGRAM

VISA

MasterCard

PERSONAL & COMPANY CHECKS
ON MAIL-IN ORDERS ONLY!

CALL FOR DETAILS \$25.00 MINIMUM ORDER

PRICE SUBJECT TO CHANGE WITHOUT NOTICE. IBM, PC, XT AND
AT ARE REGISTERED TRADEMARKS OF INTERNATIONAL
BUSINESS MACHINE!

Sabet Electronics

13650 Floyd Road, Suite 104
Dallas, Texas 75243 • ph.783-4950

VISA/MASTERCARDS
ARE WELCOME



Systems American Business

SUPER ACS-1000 Expects Today \$1475

True 8 MHz Operation
Dual 360K H/H Drives
Parallel & Dual Serial Ports
Hardware Clock
512K RAM, expands to 1 Meg
Your choice of video:
RGB or Monochrome Monitors



PRINTERS

Okidata 83 \$425
Diablo Call
IBM Graphics \$325
PCWrite Kit \$95

ALL SYSTEMS INCLUDE THE FOLLOWING:

All Cabling Required to Get On-line Immediately
Surge Protector w/Power Center
10 Diskettes of Public Domain Software
5 percent Discount on Orders of 2 Systems
Case, Power Supply, Manuals, Keyboard
120 Day Warranty/Ten Day Free Trial
SABET Electronics Technical Support

SUPER SE/AT-2000 \$3495

80286 - 6/8 MHz Operation
1.2 Megabyte Floppy Drive
Parallel & Serial Ports
20 Megabyte Hard Disk, 38 ms.
640K RAM Expand to 16 Meg.
Your Choice of Video:
Color RGB or TTL Monochrome

SUPER XT-1000 \$975

5 MHz 8088 CPU
Dual 360K H/HDrives
Parallel & Serial Ports
Green or Amber Monitor
256K User Memory

SUPER SE/AT-2001 \$1995

80286 - 6/8 MHz Operation
1.2 Megabyte Floppy Drive
Parallel & Serial Ports
Hardware Clock
256K RAM Memory

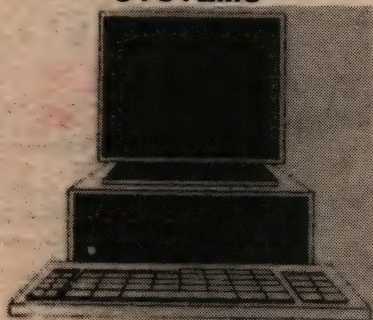


SATISFIED SABET CUSTOMERS

Rockwell International
Dallas Independent School District
Houston Independent School District
Intergraph at N.A.S.A.
Bell Helicopter
PRO-CAD Systems
University of Texas at Arlington
Univ. of Cinn. - Aerospace Engineering
Mechanic Consulting

SABET Electronics is now entering our 4th year of operation in the PC compatibles industry. We would like to thank our customers for their part in making SABET one of the oldest compatibles supply houses in the Southwest U.S. Since we were one of the first, we feel we should be the first to...

PREVIOUSLY OWNED SYSTEMS



Osborne - Complete
SD Systems S-100
DTC
Dimension 68000



COMPUTER EMERGENCY CENTER

Let our technicians repair your system, usually, while you wait!

LET THE
PRICE WARS
BEGIN !!!

PC PRICE BREAKTHROUGH!

\$675

128K Memory - Expand to 640K
Half Height 360K Floppy Drive
Your Choice, Serial or Parallel
Flip Top or IBM Clone Case
Compatible Keyboard
Color Graphics Display Adaptor
RF Modulator - Connect to T.V.
All Cabling and Manuals

Ready to Run

GENERIC DISKETTES

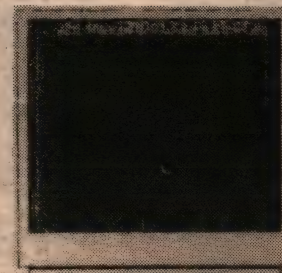
Box of 10 \$9.25
Box of 50 \$45.00
GTD 100% Error Free



PC/XT/AT OPTIONS

0-01	150ns Memory Kits 64K/256K/128K	\$7/30/40
0-02	Hard Disks 10/20/33/44	\$325/525/925/1125
0-03	Keyboards, Type 5150/5151/AT	\$95/120/145
0-04	Power Supplies 65 to 195 Watts	\$1 per Watt
0-05	Video Boards, Type Color/Herc.	\$95/145
0-06	HD Controllers, NDC/WD/DTC	\$175/185/195
0-07	Ports Serial/Parallel/Clock/Game	\$40/30/40/35
0-08	Disk, Disk, 2 RS-232, Par, Game, Clock	\$185
0-09	7 Function Board OK	\$145
0-10	512K BD, 0K/PROM Blaster	\$85/150
0-11	Floppy Controller/380 Drive	\$75/99
0-12	AT H.D. Controller - DTC 5290	\$375
0-13	JRAM - AT OK w/Ports	\$249/375
0-14	Cases: Flip/Slide/AT	\$75/75/150
0-15	1.2 Meg. AT Drive/AT Par/Serial	\$150/140
0-16	4x4 2 Meg AT Multi Board w/OK	\$385
0-17	All Extension Cables	\$10
0-18	Watson Voice Mgmt & Modem	\$485
0-19	Quibie 1200 Hayes Type Modem	\$285
0-20	AT & Deskpro Mounting Rails	\$10

MONITORS CALL !!!



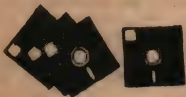
DON'T FORGET!

Our Third Saturday Sidewalk Sale. Bring your unwanted computers, peripherals, boards, tools, scopes, logic analyzers, VCRs, T.V., Apples radar detectors, stereos, monitors, satellite dishes, LNA's, alarm systems, electronic ignitions, cameras, etc., etc.

FREE COFFEE & DONUTS!

SPECTACULAR SAVINGS!

Magnetic Media



5 1/4" DISKETTES (Box 10)

WABASH	SS/SD	9.00
	SS/DD	10.00
	DS/DD	11.00
BASF	SS/DD	13.90
MAXELL	SS/DD w/Library Box	13.95
	DS/DD w/Library Box	18.95
	DS/QD	33.60
	DS/HD	49.00
FUJI	SS/DD	16.80
	DS/QD	31.30
3M	SS/DD	18.00
	DS/DD	24.00
	DS/QD	33.60
	DS/HD	54.00
DYSAN	SS/SD, 10 or 16 sector	14.95
TDK	DS/QD	29.40

5 1/4" SPECIAL (Case 100)

WABASH	SS/SD	80.00
	SS/DD	95.00
BASF	SS/DD	135.00

3 1/2" DISKETTES (Box 5)

WABASH	SS/HD	16.00
	DS/HD	26.00
MAXELL	SS/HD	16.50
	DS/HD	31.00
3M	SS/HD	17.00
	DS/HD	29.00

Key SS: Single Side
DS: Double Side
SD: Single Density
DD: Double Density
QD: Quad Density
HD: High Density

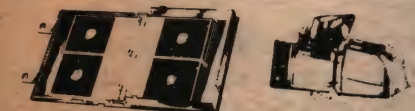
Media Storage

DISKETTE LOOSELEAF FILE PAGES

Non-glare, anti-static vinyl pages for storage of diskettes in 3-ring binders.

VINYL PAGES FOR DISKETTES

MVP-52	For two 5 1/4" diskettes	.95	.35
VP-81	For one 8" diskette	1.60	.50



SAFEKEEPER ALBUM DISKETTE FILE

Store twenty 8" or forty 5 1/4" diskettes and index cards in 8 1/2 x 11" vinyl pages (not included) in this 3-ring binder made of one-piece injection molded polypropylene. Latches close and lock with precision fit and "living" hinge is warranted not to malfunction for 10 years under normal use. Colors: Blue, Black, Beige

SK200	Safekeeper Album Diskette File	12.75	8.95
-------	--------------------------------	-------	------

PC WALLET

Here's a lot of storage at an economical price. Your mini-diskettes are kept dust-free and flat in a strong 55 point "POLYFAST" plastic binder. Store 10 mini diskettes in its five anti-static formula pages. Close the Wallet and it tucks away in a minimum of storage space. Full title information can be quickly seen on each diskette. Specify color: red, yellow, blue, white or assorted.

PC MDW10	PC Mini Diskette Wallet	5.95	4.95
----------	-------------------------	------	------



KAS-ETTE/10 LIBRARY CASE

Designed for storage and handling ten 5 1/4" or ten 8" diskettes. Cases are highly stable, will not tip over when in use and 100 diskettes can be stored on less than 19" of shelf space. Each case contains a spine label. Available in beige, black, blue, gray or red.

K/10	Kas-ette/10 Library Case 8"	5.95	2.99
MK/10	Mini-Kas-ette/10 Library Case 5 1/4"	3.95	1.99

MINI-DISK COLOR CODER 5/PAK

The ColorCoder "Colorburst" Mini Disk 5/Pak contains five Mini K/10 Library cases, one each in red, yellow, blue, green and gray, with five spine labels and fifty color coded diskette ID labels. Total 50 diskette capacity.

MK-P	Color Coder Mini Disk 5/Pak	19.95	11.95
------	-----------------------------	-------	-------

Media Storage



PORTABLE VERSA-PAK FOR 5 1/4" DISKETTES

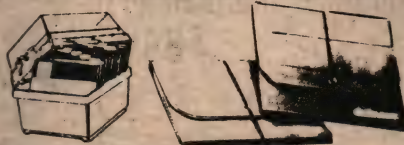
A rugged library case that holds up to five (5) 5 1/4" diskettes and travels in a briefcase, back pack or mailbag. Virtually indestructible, with classic textured book appearance, it has patented, flexible fan tabs, pop-up easel and a face label for diskette identification.

28-03	Versa-Pak Library Case, Champagne	2.95	1.79
28-04	Versa-Pak Library Case, Process Blue	2.95	1.79

DISKBANK MEDIA MATE FILING SYSTEM

Pearl gray styrene base and smoke see-through top. Five adjustable dividers separate and display up to 50 diskettes at 30° inclination for easy reading. Identification labels are included.

MM3	3 1/2" Media Mate Diskbank	14.95	10.95
MM5	5 1/4" Media Mate Diskbank	15.95	11.95



PROFESSIONAL DISK PROTECTION TRAYS

Lockable, portable boxes made from anti-static ABS plastic, for protection of floppy and mini disks. V-shaped for easy disk retrieval, with dividers the same height as disks, eliminating need for guide cards. International standard size to fit most suspended frame systems.

Model No.		Disk Capacity	
M85	Disk Tray	85 - 5 1/4"	49.90 24.50
M35	Disk Tray	35 - 5 1/4"	29.90 14.50
F90	Disk Tray	90 - 8"	59.90 29.50
F40	Disk Tray	40 - 8"	39.90 19.50

DISKADDDY

A compact, convenient and protective carrier that automatically adjusts to the number of diskettes it contains. Up to 22 disks are held upright and flat in accordion-style, clear, anti-static, vinyl pockets, with index tabs for quick retrieval. Easily fits into a briefcase and can withstand high shock without damage. Can be stored on edge as a book, upright in a drawer or box, or flat on a shelf. Index tab on outer cover. Specify colors: Red, Blue or Brown.

No.		Size	Capacity	
506	Diskaddy	5 1/4"	6	7.99 4.95
512	Diskaddy	5 1/4"	12	9.99 6.95
522	Diskaddy	5 1/4"	22	14.99 9.95
806	Diskaddy	8"	6	11.99 8.95
812	Diskaddy	8"	12	14.99 10.95
822	Diskaddy	8"	22	21.99 15.95



DISKETTE DESK FILES

Convenient desktop filing for thirty 8" or 5 1/4" diskettes, or one hundred Olivetti 2 1/2" minidisks, within non-glare, anti-static vinyl files which provide full visibility of title information and come complete with colored labels for coding. Stand is charcoal black.

DF30	8" Diskette Desk File	4 1/2	59.95 23.95
MDF30	5 1/4" Diskette Desk File	2 1/2	39.95 15.95

FLIP FILES

Black suede vinyl binder protects and displays twenty 8" or 5 1/4" diskettes, within non-glare, anti-static vinyl files which display full title information and come complete with colored labels for coding.

DB20	8" Flip File	3 1/2	42.95 17.45
MDB20	5 1/4" Flip File	2 1/2	36.95 14.75



DISKETTE FILE FOLDER PAGES

Storage pages in white vinyl, with right and left tabs and clear, full back pockets for documentation. Adhesive labels included. 10 pages - 2 lbs.

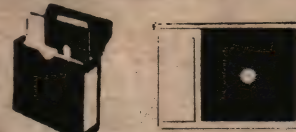
FDF1	8" File Pages for 1 disk, 1 card (supplied)	1.99	.35
FDF2	5 1/4" File Pages for 2 mini disks, 2 cards (supplied)	1.99	.79

BLANK CARDBOARD BOXES

Plain, white cardboard boxes which will store 10 diskettes per box.

CB-8	Cardboard Box, 8"	75	.45
CB-5	Cardboard Box, 5 1/4"	70	.35

Media Storage



DISKETTE STORAGE CASE

A sturdy vinyl case with top flap opening to hold up to 25 diskettes in folders. 1 case weighs 2 lbs. 10" x 12 1/2" x 4".

FDESC	Diskette Storage Case	16.95	7.95
-------	-----------------------	-------	------

HANGING FILE PAGES FOR 8" DISKS

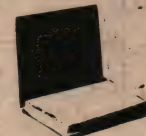
Protect your flexible disks and file them on any standard suspension frame. Each page comes with a data card. 10 pages - 1 lb.

HFD	Hanger File Pages	.95	.39
-----	-------------------	-----	-----

SUSPENSION FILES, LETTER SIZE

Non-glare, anti-static, file pockets hold and protect either one full-size or two mini diskettes, plus related 8 1/2 x 11 documents, and either one or two index cards and movable tab. 10 pages - 1 lb.

DSF01	Suspension File-one 8" diskette	2.60	1.49
MDSF02	Suspension File-two 5 1/4" diskettes	2.80	1.29

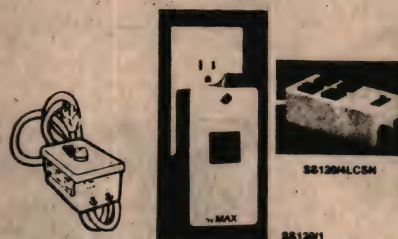


DATAFAST PRINTOUT BINDERS

Fastex Binders feature grained texture surfaces, rounded corners, 10" steel cable posts and steel rails to keep up to 8" of printout rigid and secured. Material is positively cinched by specially-notched file hooks allowing binders to hang in standard carts and racks. They are made of plastic-coated 20 point pressboard that resists moisture and general abuse up to ten times longer than ordinary pressboard. Sky Blue.

9511BB	For 9 1/2" x 11" Unburst Printout	4.95	2.69
--------	-----------------------------------	------	------

Power Products



POWER SURGE CONTROLLER WITH RFI SUPPRESSOR

Multi protection for all electronic equipment and appliances. 6 ft. cord set type, 6 grounded heavy duty outlets, red and green self-monitoring indicator lights, on-off lighted control switch, press-to-reset circuit breaker automatically terminates any circuit overload. Almond color. 1 1/2 lbs.

48735	Power Surge Controller	69.95	39.95
-------	------------------------	-------	-------

PANAMAX SURGE SUPPRESSORS

Trillionths of a second response time stops line disturbance from reaching damaging levels, with energy dissipation at the highest power handling level possible, to protect sensitive solid state equipment from transient voltage spikes and surges. Model SS120/1 has a single receptacle with standard three prong plug. Model SS120/4LCSN has four receptacles with illuminated master switch and 6 ft. line cord with standard three prong plug, and provides noise (EMI-RFI) protection in common and transverse mode. Both models have external fuses and high grade ABS thermoplastic cases. Two year warranty on each.

SS120/1	Surge Suppressor, 1 recp	59.95	29.95
SS120/4LCSN	Surge Suppressor, 4 recp	119.95	59.95



6-OUTLET POWER SYSTEM

Safely turns one outlet into six. Shock-safe, unbreakable, almond-colored housing for wall mount or portable use. 15 amp press-to-reset circuit breaker automatically terminates any circuit overload. 6 ft. grounded power supply cord. ON-OFF lighted switch. Safety caps block off unused outlets. 3" x 4" x 2".

48721-6	6-outlet Power System	24.95	14.95
---------	-----------------------	-------	-------

Power Products



BACKUP POWER SUPPLY

This low cost, solid state unit, with maintenance-free rechargeable battery, protects sensitive electronic equipment from all common power failures, including surge suppression and brownout, and can provide 250 watts of instantaneous backup power for up to 15 minutes. When power is restored, the unit automatically switches back to AC operation. Audio alarm and power indicator lights. 6 1/2 x 10 x 5", 16 lbs. One year warranty.

PowerMax	Backup Power Supply	550	279
----------	---------------------	-----	-----

ELECTRONIC POWER ALARM

Plugs into any 115 volt AC outlet for power failure detection. Alarm sounds continuously until reset button is pushed. Uses 9 volt alkaline battery (not included). Audible signal and blinking red light warns when battery power drops below 7 1/2 volts. 1/2 lbs.

48630	Power Alarm	19.95	9.95
-------	-------------	-------	------

Print Wheels

PRINTWHEELS FOR IBM DISPLAY WRITERS

OCR-A 10, OCR-B 10, Tyle 10/12, Courier 12, Orator 100% List: 25.50 Sale: 12.50

IBM COMPATIBLE TYPING ELEMENTS

Letter Gothic, Olivetti, Wang, Courier 12, Courier 12, Courier 12, Orator, Delegate, Script, Presentor, Prestige Elite 72

20.95	11.95
-------	-------

PRINTWHEELS FOR OLIVETTI PRINTERS

Prestige Pica 10, Prestige Elite 12, WP Gothic 15, Courier 12, Letter Gothic 12, Courier 10, Manifold 10, Bookface Academic.

27.90	12.50
-------	-------

Cleaners



HEAD CLEANING KITS

Designed to clean a drive head assembly without disassembling the drive. Completely safe, even if left in the drive for extended periods of time. Can be used for either single or double sided drives.

H5D1	5 1/4" Dry, 1 Disk (15 cleanings)	12.95	7.95
H5W1	5 1/4" Wet, 1 Disk w/Solution (15 clings)	12.95	8.95
H5W2	5 1/4" Wet, 2 Disks w/Solution (30 clings)	22.95	15.95
H8W2	8" Wet, 2 Disks w/Solution (30 clings)	24.95	15.95

H5W1-x	5 1/4" Wet, 1 Disk w/Solution	4.25
--------	-------------------------------	------

GUM/OFF

For removal of masking tape and gummed labels from glass, chrome, acrylic, hard plastic and polycarbonates.

CC9	Gum/off, 8 oz Pump Spray	7.95	3.50
-----	--------------------------	------	------

Work Station Aids



KEYBOARD COVER

An anti-static unbreakable keyboard protector for use with most micro computers, including Apple, Atari, Commodore, Coleco Adam, Franklin, NEC, Panasonic, Sanyo, TI, TRS-80, Zenith and others. Anti-static, high impact thermoplastic in transparent smoke color. 14 1/2" x 5 1/2". Lifetime guarantee against breakage. Also doubles as an angled riser for computer or monitor. With non-skid rubber feet.

FP883	Keyboard Cover	9.95	4.00
-------	----------------	------	------

CRT VISOR

Reduces glare from overhead lighting and improves screen readability of cathode ray tubes or microfilm units. Three sections interlock and adjust in width from 15" to 21 1/2". Black

KV-300	CRT Visor	19.95	14.95
--------	-----------	-------	-------



DISK DOUBLER KIT

Now you can use both sides of your flexible disks. The disk manufacturer did part of the job — you can do the rest, quickly and safely. It takes less than 45 seconds to double the capacity of a single disk.

DDK-5	Mini Disk Doubler Kit	8.95	6.95
DDK-8	Disk Doubler Kit	12.95	9.95

ABC DATA PRODUCTS

3311 ADAMS AVENUE • SAN DIEGO, CALIFORNIA 92116

619-283-5488 800-854-1555

IBM PC/XT, AT COMPATIBLE COMPUTERS ON SALE

MEGA XT COMPUTER



SALE

Features:

- up to 640K, on board
- 16 bit 8088 microprocessor with 8087 co-processor optional.
- 8 Expansion I/O Slots
- Fully IBM PC/XT compatible
- Same Dimension as IBM PC/XT
- IBM PC/XT compatible.

SYSTEM CONFIGURATION

☐ STARTER SYSTEM \$745

- 256K memory on board
- One DS/DD slim drives
- Floppy disk controller
- Color graphic card (or monochrome card)

☐ MONO SYSTEM \$945

- 640K memory on board
- Two DS/DD slim drives
- Floppy disk controller
- Monochrome card
- Parallel printer port
- TTL High Resolution Monitor

☐ COLOR SYSTEM \$1195

- 640K Memory on board
- Two DS/DD Slim drives
- Floppy Disk Controller
- Color Graphic Card
- RGB Color Monitor

☐ BUSINESS SYSTEM \$1499

- 640 K Memory on Board
- Two DS/DD Slim Drives
- Floppy disk controller card
- Monochrome or color graphic card
- Parallel/Serial ports
- Real time clock
- Game port
- 10 MB Hard Drive
- TTL High Resolution Monitor (or Composition Monochrome Monitor)

HARD DISK DRIVES

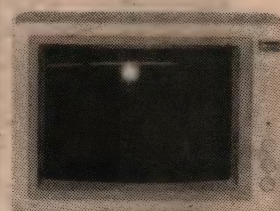


SEAGATE 10 MB
w/Western Digital
Controller (Formatted)
\$499

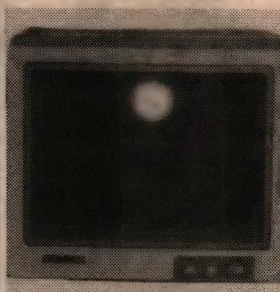


SEAGATE 20MB
w/Western Digital
Controller (Formatted)
\$649

Monitors



TATUNG 1322
• 13" CRT RGB
• 16 color display
• Lock type control on front panel
\$355



SAM SUNG 1254
• 12" High Resolution green or amber screen
• TTL input
\$105

SAM SUNG 1251
• 12" Green or Amber Screen
• Composite Input
\$99

**IMMEDIATE
DELIVERY
\$ IN STOCK \$**

ATTENTION DEALERS!

Ask Our Special Price Of This Month
For Our System, Mother Board, Add-On Card,
Case, Power Supply, Keyboard, And More!!

**C.J. COMPUTERS
CORP.**

**ORDER HOT LINE:
(714)821-8922, 821-8923**

MEGA AT COMPUTER



SALE

FEATURES:

- IBM PC/AT Compatible.
- Intel 6 MHz 80286 microprocessor. Up-gradable to 8 MHz CPU, which will increase the speed of the CPU cycle up to 33% faster than that of an IBM AT.
- 640 KByte standard main memory on board, eliminates the need to have additional memory adds-on in the 8088 compatible real address mode. Main memory up-gradable to 1 Mbyte on board, 16 Mbyte in system in a protected virtual address mode.
- 4 sockets for 64 Kbyte system EPROM/ROM, expandable to 128 Kbytes.
- 8 I/O expansion slots: 2 with a single 62-pin connector, 6 with dual 62-pin and 36-pin connectors.
- CMOS clock/calendar circuit provision
- On-board battery socket, eliminates the need for external cable (The user may install an IBM AT type battery as an alternative to the on-board battery).
- Socket for the 80287 math coprocessor.
- 3 programmable timers available.
- 7-channel direct memory access (DMA).
- 24-bit addressing, 16-bit data path
- 16-level interrupt
- speaker/keyboard connector
- standard power connector.

SYSTEM CONFIGURATION

☐ BUSINESS SYSTEM \$2150

- 640K Memory on board
- One 1.2 MB floppy drives
- Floppy & Hard drive controller
- Color Graphic Card (or monochrome card)
- Monochrome Monitor (TTL or Composite)

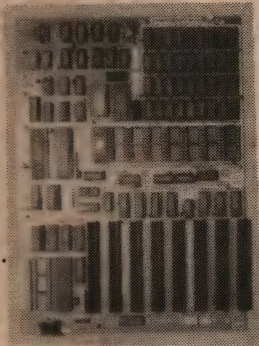
☐ ENHANCED SYSTEM \$2650

- 640K Memory on board
- One 1.2 MB Floppy Drive
- Floppy & Hard Drive Controller
- 20MB Hard Drive
- Color Graphic Card (or monochrome card)
- Monochrome monitor (TTL or composite)

MAKE YOUR OWN IBMTM PC/XT, AT COMPATIBLE!

NEW XT-16-II MOTHER BOARD 640K ON BOARD!! FULLY IBM PC/XT COMPATIBLE

- 8088 Micro-Processor w/8087 Optional
- Up to 640K on board
- 8 I/O Slots
- Same Dimension on IBM PC/XT
- 8 EPROM sockets
- Manual & schematics included



ASSEMBLED & TESTED (with BIOS)

With 256K on Board \$265
With 640K on Board \$349

IBMTM ADD ON BOARD

DISK I/O CARD \$149

- Handle 2 Floppy Drive
- 2 Serial (2nd optional)
- 1 Parallel
- Game Port
- Clock/Calendar
- w/software, manual & cables

COLOR GRAPHIC CARD \$95

- RGB & composite
- w/Light Pen & RF Modulator ports
- 640 x 200 resolution

512K MEMORY CARD (OK) \$69

- Memory Expansion to 512K
- w/Manual

NEW! EPROM PROGRAMMER \$139

- Super fast speed
- Eeprom 2716-27128
- Eeprom 2816 & Compatible
- CMOS Eeprom 27C32-27C128
- w/software & manual

FLOPPY DISK CONTROLLER \$59

- Handle 2 Internal Drives & 2 External Drives
- w/cable

384 K MULTIFUNCTION CARD

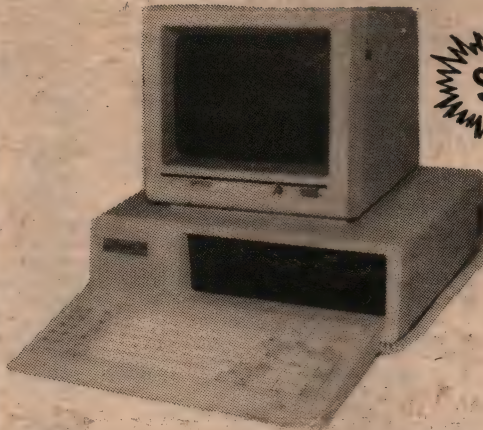
W/OK \$139
W/384K \$189

- Serial
- Parallel
- Clock/Calendar
- Game Port
- Ramdisk & PSpool
- Memory to 384K
- w/software, manual & cables

Game I/O (handle & joysticks).....	\$30
Serial Card (2nd serial optional).....	\$49
Parallel printer card.....	\$39
Parallel printer cable 9ft.....	\$15
Monochrome w/printer.....	\$119
Keyboard extension cable.....	\$8
Power Center w/surge protection, 5 control switch.....	\$49
Joystick.....	\$22

MEGA XT 640K SELF-ASSEMBLY KIT

DO IT YOURSELF
AT SUPER LOW COST!



SALE

Special Price \$775.00

* Runs Lotus 1-2-3, Symphony, D-Base, Flight Simulator and more IBM XT Software.

Including:

1. Step-by-step Assembly Instruction and User System Operations Manual
2. IBMTM PC/XT Fully Compatible Mother Board with 640K and Bios
3. Color Graphic Card
4. Floppy Disk Controller Card
5. One DS/DD Slim Drive (optional 2nd Drive \$95.00)
6. Flip Top Metal Case w/speaker
7. 135W Power Supply
8. Keyboard

Monochrome Monitor Additional \$99

CASE

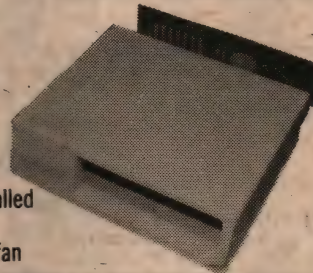
**\$75
FLIP TOP**



- Open From Top for Easy and Quick Access to Inside
- Can Be Used for Standard IBMTM PC/XT Mother Board or MegaTM Board
- Mounting parts included
- Space for internal cooling fan

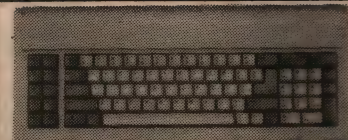
SLIDE — OUT

- Same Styles as IBMTM
- Slide Out Metal Case
- Additional Cooling Fan for System Board Can Be Installed
- Mounting parts included
- Space for internal cabling fan



KEYBOARD

\$79

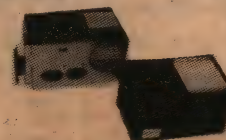


- IBMTM PC/XT Compatible
- LED for cap lock & num. lock
- Big return key
- Big shift key
- ★ Keyboard with same IBMTM Layout Also Available

POWER SUPPLY

**135W \$89
150W \$115**

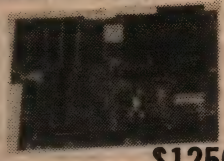
- 4 Drives Power Plug
- Side Switch Model Has The Same Dimension & Power Plug as IBM Power Supply
- Back Switch Model Fits Mega Case Perfectly



PC/AT COMPATIBLES

• PC/AT MOTHER BOARD

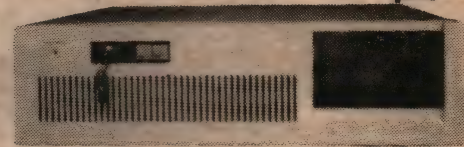
- IBM AT Compatible
- 80286 Micro Processor w/80287 optional
- 640K Standard, expandable to 1MB on board
- On board clock
- 8 I/O slots



\$1250

• PC/AT COMPATIBLE CASE

\$115



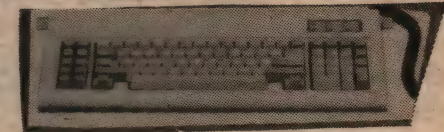
• 200W PC/AT POWER SUPPLY

\$165



• PC/AT COMPATIBLE KEYBOARD

\$109



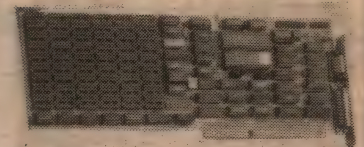
FLOPPY & HARD DRIVE CONTROLLER \$349



1.5 MB MULTI FUNCTION

- Expandable to 1.5 MB
- Serial
- Parallel • Game port

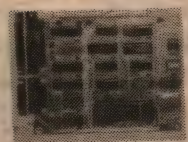
\$269



MULTI I/O

- Serial & Parallel Ports

\$99



1.2MB AT DRIVE \$165

(Well TEK High Capacity Drive)

360K AT Drive \$99

C.J. COMPUTERS, CORP. (Manufacturer & Distributor)

2424 W. Ball Road, Suite B
Anaheim, CA 92804

Tel: (714) 821-8922, 821-8923

90 DAYS WARRANTY

TERMS:

1. CA Residents add 6% Sales Tax.
2. Visa or MasterCard welcome.
3. Add \$3 for handling plus shipping.
4. COD adds additional \$3, Cashier's check only.
5. Personal check allow 2 weeks to clear.

Users Groups

LIST YOUR CLUB'S NAME AND ADDRESS COMPLIMENTS OF COMPUTER SHOPPER

Call or Write: (305)269-3211; P.O. Box F, Titusville, FL 32781

NOTE: Computer Shopper lists User Groups as a free service to readers and to the clubs. We are not responsible for errors in these listings published. Changes to this list are once a month. If you send us a correction on a listing, we will publish it in the first available issue.

ALABAMA

APPLE III NATIONAL USERS GROUP, P.O. BOX 969, MOBILE AL 36601
ATARI USERS GROUP, 3262 AIRPORT BLVD., MOBILE, AL 36606, 205-478-1282
BAMA 99ERS, P.O. BOX 1307, TUSCALOOSA, AL 35403
BAY AREA IBM PC USERS GROUP C/O STEVE HUGHES, RT. 2, BOX 281-B, FAIRHOPE, AL 36532
BIRMINGHAM APPLE CORPS, PO BOX 55421, BIRMINGHAM, AL 35255
BIRMINGHAM USER GROUP, RT. 1, BOX 539-E, TRUSSVILLE, AL 35173
C.A.T.I. 99/4A UG 4530 NARROW LANE ROAD, MONTGOMERY, AL 36116 205-288-3698
CENTRAL ALABAMA MICROCOMPUTER SOCIETY, C/O LEWIS E. GARRISON, SECRETARY, 6375 PINEBROOK DR., MONTGOMERY, AL 36117
COMPUPLANS USA FRIENDSHIP NETWORK & INTERNATIONAL USERS GROUP, C/O T.A. LYNCH, 737 MARYETHEL DRIVE, MONTGOMERY, AL 36109
CP/M USERS GROUP OF BIRMINGHAM, PO BOX 4412, BIRMINGHAM, AL 35206
FRANKLINAPPLE USERS GROUP, 3262 AIRPORT BLVD., MOBILE, AL 36606
G2C3, SPRING HILL COL., MOBILE, AL 36608
GREATER GULF COAST COMPUTER CLUB SPRING HILL COLLEGE, MOBILE, AL 36608
HUNTSVILLE ALABAMA COMMODORE KOMPUTER SOCIETY (HACKS), P.O. BOX 14356, HUNTSVILLE, AL 35815
HUNTSVILLE ATARI USERS GROUP C/O HAROLD BLEVINS, 514 JEFFREY DRIVE, N.W., HUNTSVILLE, AL 35806
M.O.C.U.G., MOBILE COMMODORE USER GROUP, 3262 AIRPORT RD., MOBILE, AL 36606
MOHUG USERS GROUP, 3636 LINDEN LANE, MOBILE, AL 36608
MONTGOMERY ATARI COMPUTER ENTHUSIASTS 2307 WALBASH DRIVE, MONTGOMERY, AL 36116
NEWTON'S TREE APPLE USER'S CLUB, PO BOX 4587, HUNTSVILLE, AL 35815
NORTH ALABAMA TI99 COMPUTER USERS GROUP, P.O. BOX 11204, HUNTSVILLE, AL 35014
SHOALS 99ers, PO BOX 2928, MUSCLE SHOALS, AL 35662
SOFTWARE SOURCE, 3262 SPRINGDALE MALL, MOBILE, AL 36606
S.M.A.U.G. (SOUTH, MOBILE AND ALABAMA USERS GROUP) TI-99, RT. 2 BOX 169-B, GRAND BAY, AL 36541
SOUTH ALABAMA USERS GROUP (SAPPLE), PO BOX 8189, MOBILE, AL 36608, 205-460-7815
VIC 20 USER GROUP, 3262 AIRPORT BLVD., MOBILE, AL 36606
WIREGRASS 99 HOME COMPUTERS USER'S GROUP, 106 HARWOOD PL., ENTERPRISE, AL 36330

ALASKA

ATARI COMPUTER CLUB OF ANCHORAGE, P.O. BOX 104343, ANCHORAGE, AK 99510
POLAR PC'S USER'S GROUP, C/O GLEN M. WILCOX, P.O. BOX 72934, FAIRBANKS, AK 99707
SHARP YX-3200 GROUP, C/O JOHN MORRISON, 801 AIRPORT HTS., SPACE 186, ANCHORAGE, AK 99508

ARIZONA

ARIZONA ASSOCIATION OF CROMEMCO USERS, C/O JO ANN DRAKE, 2207 W. EUGIE AVE., PHOENIX, AZ 85029
ARIZONA COMPUTER SOCIETY, PO BOX 15623, PHOENIX, AZ 85060
ARIZONA FORTH INTEREST GROUP, C/O DENNIS WILSON, 2631 E. PINCHOT AVE., PHOENIX, AZ 85016
DECATUR APPLE USERS, P.O. BOX 704, DECATUR, AZ 35602
EPSON QX-10 USERS GROUP OF TUCSON, C/O DORIS FELZ, 4508 E. 8TH ST., TUCSON, AZ 85711
GILA VALLEY APPLE GROWERS ASSOC., C/O DON LANCASTER, BOX 809, THATCHER, AZ 85552
MORROW DESIGNS USERS GROUP, 1316 S. GILBERT D-11, MESA, AZ 85204
NAVAJO AREA COMPUTER USERS, PROGRAM SERVICES BLDG., NAIHS, P.O. BOX G, WINDOW ROCK, AZ 86515
SOUTHWEST NINETY-NINERS, A TI99/4A USERS GROUP, P.O. BOX 17831, TUCSON, AZ 85730
SUGOP, 4141 N. 28TH DR., PHOENIX, AZ 85017
TUCSON COLOR COMPUTER USERS GROUP, BOX 15186, TUCSON, AZ 85707
TUCSON COMPUTER GROUP, C/O MORRIS MILLER, 5985 S. HEROPA, TUCSON, AZ 85706
TUCSON OSBORNE NETWORK, C/O DONALD RANDOLPH, 9328 N. GAZELLE PLACE, TUCSON, AZ 85741, (602)744-3693
VERDE VALLEY COMPUTER CLUB, P.O. BOX 509, SEDONA, AZ 86336
YAVAPAI COUNTY CP/M USERS GROUP, C/O JULIE G. WOODMAN, P.O. BOX 68, KIRKLAND, AZ 86322

ARKANSAS

ARKANSAS COMPUTER CLUB, P.O. BOX 7434, LITTLE ROCK, AR 72217
ARKANSAS FORTH INTEREST GROUP, C/O GARY SMITH, P.O. DRAWER 7680, LITTLE ROCK, AR 72217
BEGINNING BASIC PROGRAMMERS, P.O. BOX 424, BENTONVILLE, AR 72712
THE "BYTERS" TI USERS GROUP, RT. 2 BOX 778, EL DORADO, AR 71730
COMMODORE CLUB OF PINE BLUFF, C/O BRUCE ASHCRAFT, P.O. BOX 1083, PINE BLUFF, AR 71603
THE COMMODORE COMPUTER CLUB OF PINE BLUFF, 2811 BELMOOR, PINE BLUFF, AR 71603
IBM COMPUTER USERS CLUB OF ARKANSAS, P.O. BOX

82, JACKSONVILLE, AR 72076
J.U.G., JACKSONVILLE TI 99/4A USERS GROUP, P.O. BOX 525, JACKSONVILLE, AR 72076
LR CP/M USERS GROUP, C/O E.A. WINGFIELD, 26 BELMONT DR., LITTLE ROCK, AR 72204
LITTLE ROCK APPLE ADDICTS, P.O. BOX 55217, LITTLE ROCK, AR 72205
LITTLE ROCK 99er USERS GROUP, P.O. BOX 55, LITTLE ROCK, AR 72115
RIVER CITY COMMODORE CLUB, P.O. BOX 4298 NORTH LITTLE ROCK, AR 72116
SALINE NINETY-NINER USERS GROUP (SNUG), ROUTE 5, BOX 962E, BENTON, AR 72015

CALIFORNIA

4 COTTA ITEMS/APPLES, P.O. BOX 3708, BEVERLY HILLS, CA 90212
64K COCO NUTZ, 569 PARSONS DRIVE, REDDING, CA 96002
68796 (6800 * IEEE-796) HACKERS/NEWSLETTER, 12450 SKYLINE BLVD., WOODSIDE, CA 94062
ABACUS - A BAKERSFIELD AREA COMMODORE USERS SOCIETY, C/O GENE SMITH, 2316 SANDY LANE, BAKERSFIELD, CA 93306
ADAM USERS OF AMERICA, P.O. BOX 6307, HUNTINGTON BEACH, CA 92615
APPLE PIE WRITERS, 12841 HAWTHORNE BLVD., BOX 589, HAWTHORNE, CA 90250
ATARI BAY AREA COMPUTER USERS SOCIETY, A.B.A.C.U.S., P.O. BOX 325 EL CERRITO, CA 94530
BAKERSFIELD TIMEX SINCLAIR UG, 2617 ANZA STREET, BAKERSFIELD, CA 93305, (805) 871-7024
BAY AREA ATARI UG, Foothill College, 12345 EL MONTE RD., LOS ALTOS HILLS, CA 94022
BAY AREA KAYPRO USERS AND PROGRAMMERS (BAKUP), P.O. BOX 20181, OAKLAND, CA 94620
BAY AREA NEC100 USER'S GROUP, C/O TRULY PORTABLE, P.O. BOX 2916, OAKLAND, CA 94609
BAY AREA SANYO GROUP, C/O KEN TAYLOR, 4008 PASADENA DRIVE, SAN MATEO, CA 94403
BRIDGE - DG UG, C/O REGGIE GATES, 4222 CARFAX AVE., LAKEWOOD, CA 90713
BUGS (BASIS UG OF SACRAMENTO), C/O GENE AULICH, CLUB PRESIDENT, 10632 VIANI WAY, RANCHO CORDOVA, CA 95670
BYTE BANDITS OF AMERICA, C/O R.W. BROWN, DIRECTOR, TRS-80 SOCIAL COMPUTER CLUB, SAN JOSE, CA 95008, (408) 379-2774
CABRILLO COMPUTER SOCIETY, P.O. BOX 3032, CAMARILLO, CA 93011
CALIFORNIA BAY AREA BASIS 108 USERS GROUP, C/O ROGER BERNHARDT, 536 MISSION, SAN FRANCISCO, CA 94105, (415) 442-7281
CENTRAL COAST TRS-80 COMPUTER U.G. 408-B ELIZABETH, SANTA MARIA, CA 93454
COMPUTER SOFTWARE DISCOUNT CLUB OF AMERICA, P.O. BOX 2806, HOLLYWOOD, CA 90078
CENTRAL VALLEY 99/4 UG, 569 VILLANOVA DR., DAVIS, CA 95616
CONVIA ASSOCIATED COMPUTER CLUB, C/O MARK JONES, P.O. BOX 85357, MZ 54-1176, SAN DIEGO, CA 92138
CORHOTS UG, C/O BRENT LOWENSOHN, LOS ANGELES, CA
CYBERNAUGHTS, P.O. BOX 1943, SANTA MARIA, CA 93456
DAVIS MACINTOSH USER GROUP, C/O STUDENT ACTIVITIES, BOX 140, UNIVERSITY OF CALIFORNIA, DAVIS, CA 95616
DIABLO VALLEY PC, 1415 OAKLAND BLVD., SUITE 101, WALNUT CREEK, CA 94596
DG CLUB OF SAN JOSE, 5450 MONTEREY RD., #22, SAN JOSE, CA 95111
EAST VALLEY APPLE CLUB, P.O. BOX 4328, DIAMOND BAR, CA 91765
EAST VALLEY APPLE CLUB, C/O WILLIAM NOEL, 2647 PINE VALLEY AVE., ONTARIO, CA 91761
EBZUG, 654 40TH STREET, RICHMOND, CA 94805
ET-3400 UG, 11231 OAK ST., EL MONTE, CA 91731
FIRST OSBORNE GROUP, (FOG), P.O. BOX 11683-A, PALO ALTO, CA 94306
FIRST SOUTHERN CALIFORNIA ADAM UG, P.O. BOX 6307, HUNTINGTON BEACH, CA 92615
FOOTHILL EPSON USER GROUP 2960 HAWKTRIDGE DR., LA CRESCENTA, CA 91214
FORTH INTEREST GROUP, P.O. BOX 1105, SAN CARLOS, CA 94070
FRIDAY PROJECT, LAWRENCE HALL OF SCIENCE, UNIVERSITY OF CALIFORNIA, BERKELEY, CA 94720
GAULIAN USERS GROUP, C/O R.W. BROWN, 780 MANX AVENUE, CAMPBELL, CA 95008 (408) 379-2774
GLENDALE/EL CRESCENTA UG CP/M - EPSON QX - 10, 2960 HAWKTRIDGE DRIVE, LA CRESCENTA, CA 91214
HEATHKIT UG, 3611 MERRIMAC AVE., SAN DIEGO, CA 92117
HFEA APPLE COMPUTERS USERS, 424 W. COMMONWEALTH AVE., FULLERTON, CA 92632
HI DESERT APPLE COMPUTER CLUB, PO BOX 2702, LANCASTER, CA 93539
IBM P.C. CLUB & NEWS, 9120 GRAMMERCY DR., #416, SAN DIEGO, CA 92123
IBM PC UG, C/O M. BRIOSKI, 1880 CALIFORNIA #12, SAN FRANCISCO, CA 94109
INSUA, P.O. BOX 2910, FAIRFIELD, CA
INTECOLOR-COMPCOLOR UG, 5250 VAN NUYS BLVD., VAN HAYS, CA 91401
INTERNATIONAL APPLE CORE, 908 GEORGE ST., SANTA CLARA, CA 95054
INTERNATIONAL HOME COMPUTER USERS ASSOCIATION, P.O. BOX 371, RANCHO SANTA FE, CA 92067
JPL APPLE COMPUTER CLUB, 4800 OAK GROVE DRIVE,

PASADENA, CA 91103
KAYPRO UG, 3134 N. PALM SHIELDS, FRESNO, CA 93704
KINGS 99/4A UG, 299 W. BIRCH, HANFORD, CA 93230
KRANSIG CORP. UG, C/O CRAIG SHELDON, BOX 217, STRATHMORE, CA 93267
LA 99ers COMP. GROUP, P.O. BOX 3547, GARDENA, CA 90247
LITTON CALCULATOR, CONF. ROOM, WOODLAND HILLS, CA 91367
LOGIC CLUB, 550 MARIGOLD DR., FAIRFIELD, CA 94533
LOS ANGELES COLOR COMPUTER UG, C/O CRAIG R. HANNA, 10144 DAINES DR., TEMPLE CITY, CA 91780
LOS ANGELES CROMEMCO, 4747 SUNSET BLVD., LOS ANGELES, CA 90027
MACVALLEY USERS GROUP, P.O. BOX 4297, BURBANK, CA 91503
MADISONIAN NATIONAL COMPUTER CLUB, 12702 EMELITA ST., NORTH HOLLYWOOD, CA 91607
MCTUG (MSDOS, CP/M, & TANDY USERS' GROUP), C/O DR. FRANK HOVELL, 907 SPRUCEWOOD COURT, PETALUMA, CA 94952
MODE, SAN LORENZO VALLEY HIGH SCHOOL, FELTON, CA 95018
MODESTO - TURLOCK IBM PC UG, P.O. BOX 1122, MODESTO, CA 95353
99er's UG ASSOCIATION, 3535 SO. H. ST., #93, BAKERSFIELD, CA 93304
NOCC, NORTH ORANGE COUNTY COMPUTER CLUB, P.O. BOX 3616, ORANGE, CA 92656
NORTHERN CALIFORNIA COMPCOLOR UG, 5670 ALLEN AVE., #2, SAN JOSE, CA 95123
NORTHSTAR SOFTWARE EXCHANGE, 704 SOLANO AVE., ALBANY, CA 94706

OASIS UG, P.O. BOX 2400, SANTA BARBARA, CA 93120
OPEN (CP/M USERS), LAC. CSU LONG BEACH, CA 90840
ORANGE APPLE COMPUTER CLUB, SUITE 251, BLDG. 105, 25422 TRABUCO ROAD, EL TORO, CA 92630
ORANGE COUNTY HP-86/87 USERS CLUB, MILTON BEYCHOK, 63 OAK TREE LANE, IRVINE, CA 92715
ORANGE CO TRS-80, MILE SQUARE PK., FTM VALLEY, CA 92708
OSBORNE, J. WISH, 5 SATURN ST., SAN FRANCISCO, CA 94114
PENINSULA USER GROUP-PUG, 263 GATEWAY NO. 107, PACIFICA, CA 94044
PETS AROUND LIVERMORE (PALS), P.O. BOX 1068, LIVERMORE, CA 94550
PICONET (A CP/M UG), C/O MARLEEN WRIGHT, P.O. BOX 391556, MOUNTAIN VIEW, CA 94039, (408)448-0881
PROF. SOFTWARE PROG. ASSOC., P.O. BOX 1389, CAMPBELL, CA 95008
PROTEUS PROCESSOR TECHNOLOGY USERS, 1690 WOODSIDE RD., SUITE 219, REDWOOD, CA 94061
P.S. PENINSULA APPLE COMPUTER ENTHUSIASTS, C/O DAVID HARRIS, P.O. BOX 1257, PALO ALTO, CA 94302
SACRAMENTO IBM PERSONAL COMPUTER USERS GROUP, 6941 LE HARVE WAY, CITRUS HGTS., CA 95610
SACRAMENTO SANYO USERS' GROUP, P.O. BOX 660216, SACRAMENTO, CA 95866-0216
SACRAMENTO U COMP USERS, 59TH ST., SACRAMENTO, CA 95819
SAN DIEGO COMPUTER SOCIETY, 6401 LYNDA VISTA RD., SAN DIEGO, CA 92111
SAN FERNANDO VALLEY 6502 USERS GROUP, C/O LARRY GOGA, 3816 ALBRIGHT AVE., LOS ANGELES, CA 90066
SAN FERNANDO VALLEY COMPUTER USERS GROUP, C/O H.W. COMPUTER, 19511 BUSINESS CENTER DR., NORTH RIDGE, CA 91324
SAN FRANCISCO APPLE CORPS., 1551 FLOAT BLVD., SAN FRANCISCO, CA 94131
SAN FRANCISCO TRS-80 USERS GROUP, 2001 WILLOW ST., SAN BRUNO, CA 94066
SAN GABRIEL VALLEY 99 SERIES USERS GROUP, 1008 DONE ST., W. COVINA, CA 91792
SAN GABRIEL VALLEY TRS-80 USER GROUP, C/O DAN DRESSELHAUS, 750 E. 5TH ST., #75, AZUSA, CA 91702
SAN MARINO IBM USER GROUP, C/O CHRISTOPHER CHICHESTER, P.O. BOX 80074, SAN MARINO, CA 91108-8074
SANYO-PC-HACKER/NEWSLETTER (INTERNATIONAL), 12450 SKYLINE BLVD., WOODSIDE, CA 94062
S.B.A.C.E., SANTA BARBARA A.C.E., 365 HILLSBORO WAY, GOLETA, CA 93177
S.C.C.G. SOUTHERN CALIFORNIA COMPUTER GROUP, C/O ARDEN BATES, P.O. BOX 21181, EL CAJON, CA 92021
SAN FRANCISCO APPLE CORPS., 1551 FLOAT BLVD., SAN FRANCISCO, CA 94131
SAN JOAQUIN 4BASE II USERS GROUP, P.O. BOX 217, STRATHMORE, CA 93267
SILICON VALLEY COMPUTER SOCIETY, P.O. BOX 60506, SUNNYVALE, CA 94088
SILICON VALLEY SINCLAIR/TIMEX UG, P.O. BOX 4133, SANTA CLARA, CA 95054-0133
SKUG, SOUTH BAY KAYPRO USERS GROUP, P.O. BOX 390088, MOUNTAIN VIEW, CA 94039
SMARTUG, SANTA MONICA AREA TRS-80 USERS GROUP, 1433 11TH ST., #3, SANTA MONICA, CA 90401
SMUG (SACRAMENTO MICROCOMPUTER USERS GROUP), PO BOX 161513, SACRAMENTO, CA 95816
S.M.U.G., SACRAMENTO MICROCOMPUTER USER GROUP, P.O. BOX 60116, SUNNYVALE, CA 94088
SOCIETY OF COMPUTER USERS, C/O MR. HOLLAND, P.O. BOX 555, INVERNESS, CA 94937
SOUTH BAY APPLE COMPUTER CLUB, P.O. BOX 5201, TORRANCE, CA 90510
SOUTH BAY ATARI COMPUTER ENTHUSIASTS, C/O JAMES A. JENGO, 5025 RANGE HORSE LANE, ROLLING HILLS EST., CA 90274
SOUTH BAY TRS-80 USERS GROUP, P.O. BOX 60116, SUNNYVALE, CA 94088
SOUTH BAY 99ERS, 517 EAST BAYSHORE, REDWOOD CITY, CA 94063
SOUTHERN CALIFORNIA AMATEUR RADIO COMPUTER CLUB, 962 CHEYENNE, COSTA MESA, CA 92626
SOUTHERN CALIFORNIA COMPUTER GROUP, P.O. BOX 21181, EL CAJON, CA 90211
SOUTHERN CALIFORNIA DIGITAL GROUP COMPUTING SOCIETY, C/O FRED SUTTON, 1230 S. HELBERTA, REDONDO BEACH, CA 90277
STAR APPLE CLUB, P.O. BOX 7747, U.S. NAVAL HOSPITAL,

FPO SAN FRANCISCO, CA 96630
THE SOUTH BAY COLOR COMPUTER CLUB, C/O ANDREW CORLETT, 1435 W. 172ND STREET, GARDENIA, CA 90247, (213) 538-8394
SUPER BRAIN USERS GROUP, P.O. BOX 3121, BEVERLY HILLS, CA 90212 (INTERTEC COMPUTER USERS)
T.I. RIVERSIDE USER GROUP, 3523 MCKINLEY, RIVERSIDE, CA 92506
TIS 1000 GROUP & VIC-20 GROUP, P.O. BOX 5703, STOCKTON, CA 95204
TEXBUG, 3535 S. H. ST., #93, BAKERSFIELD, CA 93304
TIMEX Z80 USERS GROUP, 1624 LOUGHBOROUGH, MERCED, CA 95340
TRI-VALLEY 99ERS CLUB, 306 FLITTNER CIRCLE, THOUSAND OAKS, CA 91360
TRS-80 MODEL I USERS GROUP OF WEST LOS ANGELES, P.O. BOX 85, CULVER CITY, CA 90230
TRS-80 MODEL 4 USERS GROUP, 14472 E. AMHERST, MOORPARK, CA 93021
TRS-NYBBERS, CHABUT COLLEGE, 25555 HESPERIAN BLVD., HAYWARD, CA 94545
TRW APPLE USERS GROUP, C/O KIM SCHUETTE, 7530 W. 80TH ST., LOS ANGELES, CA 90045
TURBODOS, 663 JOAST AVE., SAN FRANCISCO, CA 94127
UCLA COMPUTER CLUB, 3514 BOELTER HALL, LOS ANGELES, CA 90024
UCSD - SYSTEM USERS SOCIETY, P.O. BOX 1148, LAJULLA, CA 92038
USERS GROUP OF ORANGE CITY, 1673 W. CHATEAU, ANAHEIM, CA 92802
VALLEY COMPUTER CLUB, P.O. BOX 6545, BURBANK, CA 91510
VTHG (VALLEY TRS80 HACKER'S GROUP, P.O. BOX 9747, NORTH HOLLYWOOD, CA 91609
WEST LOS ANGELES SINCLAIR TIMEX COMPUTER USER'S GROUP, P.O. BOX 34545, LOS ANGELES, CA 90034
WEST LOS ANGELES VICTOR USERS GROUP, C/O GUY WONG, 15 UNIVERSITY AVENUE, SACRAMENTO, CA 90030
Z-80 USERS GROUP, 7962 CENTER PKWY., SACRAMENTO, CA 95823
Z-WEST, P.O. BOX 2411, VISTA, CA 92083
ZX81/TS1000 USERS, PO BOX 2411, VISTA, CA 92083

COLORADO

ACES HIGH (FRANKLIN USERS GROUP), C/O GEORGE T. PALECKE, P.O. BOX 22974, DENVER, CO 80222
AMUS (ALPHA MICRO USERS SOCIETY), 735 WALNUT ST., BOULDER, CO 80302
APPLE II COMPUTER USERS GROUP, P.O. BOX 17467, DENVER, CO 80217
APPLE II USER GROUP OF COLORADO, 6818 S. MAGNOLIA COURT, ENGLEWOOD, CO 80112
ASSOCIATION OF COMPUTER USERS, 1690 38TH ST., P.O. BOX 9003, BOULDER, CO 80301
COLORADO SPRINGS OSBORNE GROUP, C/O JOHN WISMAN, PRESIDENT, 6536 LANGE DR., COLORADO SPRINGS, CO 80918
DENVER AMATEUR COMPUTER SOCIETY, C/O CONNIE ULEHLA, BOX 477, WHEATRIDGE, CO 80034
DENVER KAYPRO ASSOCIATION, P.O. BOX 1507, WHEATRIDGE, CO 80034 (303) 422-2996
DENVER OSBORNE USERS GROUP, 19704 E. LOYOLA CIRCLE, AURORA, CO 80013-3904
FRONT RANGE 99ers COMPUTER CLUB, P.O. BOX 9572, COLORADO SPRINGS, CO 80932
FT. COLLINS COMMODORE COMPUTER CLUB, C/O JUDI DIFRANCESCO, SEC. TRES., 1625 CENTENNIAL RD., FORT COLLINS, CO 80525
MICRO COMPUTER USERS GROUP, PO BOX 2382, GRAND JUNCTION, CO 81502
MILE HIGH CHAPTER TIS USERS, C/O JEFF BROTHERS, 914 S. VICTOR WAY, AURORA, CO 80012, 303-892-6666
PC PARTNERS, C/O CHUCK MOLLING 1050 CEDAR, BROOMFIELD, CO 80020
PC USERS GROUP OF COLORADO, P.O. BOX 944, BOULDER, CO 80306, 303-443-5528, EVENINGS
SANYO COMPUTER CLUB OF COLORADO SPRINGS, C/O NORMAN R. MARTELL, 6651 METROPOLITAN STREET, WIDEFIELD, CO 80911
TIPEBLO, C/O STANLEY CLARK, PRES., 809 E. 12TH, PUEBLO, CO 81001
VICODRE USERS GROUP, C/O WAYNE SUNDSTROM, 326 EMORY DR., LONGMOT, CO 80501

CONNECTICUT

APPLE, IBM, S-100 USERS GROUP, C/O J. COHEN, 50 CEDAR ROAD, BETHANY, CT 06525
APPLELIST USERS GROUP, P.O. BOX 8235, NEW HAVEN, CT 06530
APPLESHARE, P.O. BOX 96, WESTPORT, CT 06881
COMMODORE USERS GROUP OF STRATFORD, P.O. BOX 1213, STRATFORD, CT 06497
CONNECTICUT ATARI COMPUTER ENTHUSIASTS (C.A.C.E.), C/O TOTAL COMPUTERS, INC., 200 W. MAIN STREET, MERIDEN, CT 06450
CONNECTICUT COMPUTER SOCIETY, 180 BLOOMFIELD AVE., HARTFORD, CT 06105
CONNECTICUT CP/M USERS GROUP, C/O MALCOLM ROTH, 62 BURNWOOD DR., BLOOMFIELD, CT 06002, (203)423-3063
CONNECTICUT KAYPRO USERS GROUP, P.O. BOX 9235, NEW HAVEN, CT 06533-0235
CONNECTICUT MICRO DECISION USERS GROUP, 773 DIXWELL AVE., BOX 6, NEW HAVEN, CT 06511
CONNECTICUT MICROISTS, 3 WENDY LN., WESTPORT, CT 06880, DATALINE (203)227-4946
CONNHUG, 395 WEST MAIN ST., AVON, CT 06001
D.P. DIRECTIONS, P.O. BOX 562, BLOOMFIELD, CT 06002
DOCTOR'S COMPUTER CLUB, 42 E. HIGH ST., E. HAMP-TON, CT 06424
FAIRFIELD COUNTY TRS-80 USERS GROUP, C/O ALAN ABRAHAMSON, 10 RICHLEE RD., NORWALK, CT 06851
GREENWICH COMPUTER CLUB, P.O. BOX 295, OLD GREENWICH, CT 06870
H.U.G.E. APPLE CLUB, C/O GEORGE CARBONELL, P.O. BOX 18027, EAST HARTFORD, CT 06118
IBM PC CLUB OF FAIRFIELD COUNTY, P.O. BOX 291, NEW CANAAN, CT 06840
NEC OF GREATER HARTFORD, P.O. BOX 5033, ROCKY HILL, CT 06067

NUTMEG TI-99ers, C/O JANET RYAN, 10 JOLLY ROAD, ELLINGTON, CT 06029
OSBORNE USERS GROUP, C/O MARC COHEN, 23 CRESTVIEW DRIVE, BROOKFIELD, CT 06084
PC USERS GROUP, P.O. BOX 4408, MARION, CT 06444
PROCOMP, 844 VERNON ST., MANCHESTER, CT 06090
SOUTH EAST CONNECTICUT APPLE USERS GROUP, (SECAUG), C/O WARREN HOLMGREN, 42 TERRY ROAD, GALES FERRY, CT 06335, (203)464-9372
SOUTHERN CONNECTICUT APPLE GROUP, FOR INFORMATION CALL HELEN CHAO, 436-0431 DAYS, ANGELO NARDUZZO, 932-3230, NIGHTS
STAMFORD COMMODORE USERS GROUP, P.O. BOX 1337, STAMFORD, CT 06904
THE TRS-80 USERS GROUP OF CENTRAL CONNECTICUT, P.O. BOX 1575, HARTFORD, CT 06144
TRITOWN PCJ USERS GROUP, C/O TED MELINOSKY, 525 FOSTER STREET, SOUTH WINDSOR, CT 06074
THE UCONN PC CLUB, P.O. BOX 542, STORRS, CT 06268

DELAWARE

THE BRANDYWINE USERS GROUP (BUG), P.O. BOX 10943, WILMINGTON, DE 19850
D.U.M.P.S. (DELAWARE USERS GROUP OF MICROPROCESSOR SYSTEMS), P.O. BOX 201, ROCKLAND, DE 19732
KENT COUNTY 99/4A USERS GROUP, DOVER, DE
MUD - MACINTOSH USERS OF DELEWARE, P.O. BOX 161, ROCKLAND, DE 19732
TI DELAWARE VALLEY USERS GROUP, C/O JACK R. THORPE, P.O. BOX 6240, STANTON BRANCH, WILMINGTON, DE 19804

DISTRICT OF COLUMBIA

CP/M USERS GROUP OF WASHINGTON DC, P.O. BOX 11011, ARLINGTON, VA 22210-2011
COMPUERVE IBM PC SIG, 4910 43rd STREET NW, WASHINGTON, DC 20016
NATIONAL CAPITAL ATARI, C/O A. LERMAN, 14905 WATERWAY DRIVE, ROCKVILLE, MD 20853
WASHINGTON AREA USERS GROUP, *TIMEX/SINCLAIR, C/O STEVE WYATT, P.O. BOX 6239, WASHINGTON D.C. 20015

FLORIDA

A.C.E.S., APPLE COMPUTER ENJOYMENT SOCIETY, P.O. BOX 9222, CORAL SPRINGS, FL 33065
ADAM USERS GROUP, C/O RANDY ADAMS, 1206 - 12TH WAY, WEST PALM BEACH, FL 33407
APPLE III, 5018 66TH ST. N., ST. PETERSBURG, FL 33584
APPLE JACK'S USER'S GROUP, NEWSLETTER DEPARTMENT, 417 TAHITIAN TERR., JACKSONVILLE, FL 32216
APPLE JAX USERS GROUP, 7670 KNOLL DR. NORTH, JACKSONVILLE, FL 32221
APPLE METROPOLIS, 7220 SW 131 AVE., SUITE #133, MIAMI, FL 33183
ATARI CLUB OF ORLANDO, P.O. BOX 31385, ORLANDO, FL 32862
ATARI COMPUTER CLUB OF SOUTH BREVARD, (AN INDEPENDENT USERS GROUP), C/O LOREN FULLER, 530 SYLVIA RD., W. MELBOURNE, FL 32901
ATARI COMPUTER CLUB OF THE PALM BEACHES, C/O JIM WOODWARD, 2220 LAKEWORTH ROAD, #2, LAKEWORTH, FL 33460
ATARI COMPUTER USERS OF TEMPORE PINES, FL 1691 NW 97TH WAY, TEMPORE, FL 33024 C/O NEAL OCHACHER
ATLANTIS COMPUTER CLUB OF ATLANTIS PRIVATE SCHOOLS, 5432 HALLANDALE BEACH BLVD., HOLLYWOOD, FL 33023
B.A.S.E. (BAY AREA SANYO ENTHUSIASTS), P.O. BOX 350104, TAMPA, FL 33695-0104
BAY AREA SANYO ENTHUSIASTS, P.O. BOX 350104, TAMPA, FL 33695-0104, 1-788-7865 or 886-7751
BRANDON USERS GROUP, 108 ANGLEWOOD DRIVE, BRANDON, FL 33511
BROWARD 99ers, P.O. BOX 22306, FT. LAUDERDALE, FL 33301 (305) 587-8429
B.U.G. BREVARD USERS GROUP, P.O. BOX 1402, PALM BAY, FL 32906
CENTRAL FLORIDA COMMODORE USERS CLUB, P.O. BOX 7326, ORLANDO, FL 32854 (305) 886-0390
CENTRAL FLORIDA COMPUTER SOCIETY, 2821 SUNSEST DR., APOPKA, FL 32703, (305) 862-1329
CENTRAL FLORIDA OSBORNE GROUP, 863 TRUMULL STREET, DELTONA, FL 32725 (904) 789-5294
CHAPTER XI OSBORNE USER'S GROUP, C/O CHARLES M. GREENE, 18799 RIO VISTA DRIVE, TEQUESTA, FL 33458
CIGG, C/O TONY JOHNSON, 235 BISHOP DRIVE, GAINESVILLE, FL 32607
CLEARWATER COMMODORE CLUB, 1532 LEMON ST., CLEARWATER, FL 33516
COLOR COMPUTER CLUB OF SARASOTA, C/O ERNIE BONTRAGER, 4047 BEE RIDGE RD., SARASOTA, FL 33582
THE COMMODORE COMPUTER GROUP, C/O DAVID PHILLIPS OR DWAYNE MAYS, P.O. BOX 9726, JACKSONVILLE, FL 33208
D-BUG ATARI, C/O DIXON TAM, 134 NORTH FEDERAL HIGHWAY, HALLANDALE, FL 33009
THE DAYTONA 99ERS, P.O. BOX 15232, DAYTONA BEACH, FL 32015
DAYTONA BEACH APPLE USERS GROUP, P.O. BOX 9596, DAYTONA BEACH, FL 32020
DAYTONA BEACH COMMODORE USERS GROUP, C/O RAY VATH, P.O. BOX 1097, EDGEWATER, FL 32032
ELSH, P.O. BOX 2142, PINELLAS PARK, FL 33565
EL-SHIFT-ON, P.O. BOX 548, COCOA, FL 32922
FLORIDA WEST COAST OSBORNE CLUB, 1210 CASEY KEY ROAD, NOKOMIS, FL 33555
FT. LAUDERDALE EPSON ASSOCIATION, 2020 N.E. 17TH COURT, FT. LAUDERDALE, FL 33305
G.C.O.G., P.O. BOX 570609, MIAMI, FL 33157
GREATER ORLANDO 99ERS, C/O EUGENE DIVEGLIA, P.O. BOX 1381, MAITLAND, FL 32751
GREATER ORLANDO OSBORNE USERS GROUP, 2671 ELLEN AVE., KISSIMEE, FL 32743, (305)847-7031
JACKSONVILLE ATARI COMPUTER ENTHUSIASTS, 1187 DUNBAR CT., ORANGE PARK, FL 32073
JACKSONVILLE COLOR COMPUTER CLUB, 2411 HIRSCH AVE., JACKSONVILLE, FL 32216

Users Groups

JACKSONVILLE HEATH USERS GROUP, 8262 ARLINGTON EXPRESSWAY, JACKSONVILLE, FL 32211
 JACKSONVILLE OSBORNE USERS GROUP, 6011 BROOKRIDGE DR., JACKSONVILLE, FL 32210
 JACKSONVILLE USERS GROUP, C/O H. WALKER, P.O. BOX 17547, JACKSONVILLE, FL 32245-7457
 MAMMOSA COMMODORE USERS GROUP, 916 E. 35TH AVE., DR. BRADENTON, FL 33508
 MAMMOSA IBM-PC USER GROUP, 1102 MALLORIA DR., BRADENTON, FL 33529, 813-792-5400
 MANASOTA 99 USERS GROUP, 6625 ROXBURY DR., SARASOTA, FL 33581
 MARION COUNTY COMPUTER SOCIETY (MACCS), P.O. BOX 248, 2950 NE 55th AVE., SILVER SPRINGS, FL 32688
 MIAMI APPLE USERS GROUP, C/O STEVE KRAMER, P.O. BOX 403428, MIAMI BEACH, FL 33140
 MIAMI PC USER GROUP, C/O JEFFREY FEINBERG, 2500 E. HALLANDALE BCH. BLVD., STE. 707, HALLANDALE, FL 33009
 MIAMI PC USERS GROUP, C/O HAROLD J. SCHULMAN, 443 N.E. 195TH STREET, #139, MIAMI, FL 33179
 MSIG-ELF - (MIAMI SPECIAL INTEREST GROUP-ELF), 656 NE 164 ST., N. MIAMI BCH, FL 33162
 MSIG-OSI, (MIAMI SPECIAL INTEREST GROUP-OSI), 656 NE 164 ST., N. MIAMI BEACH, FL 33162
 MSIG-S100 - (MIAMI SPECIAL INTEREST GROUP-S100 BUS), 656 NE 164 ST., N. MIAMI BCH, FL 33162
 N.W. FLORIDA 99ER USERS GROUP, P.O. BOX 3641, PENSACOLA, FL 32516
 NATIONAL PUBLIC DOMAIN USERS GROUP, FOR OSBORNE I COMPUTERS, P.O. BOX 1442, ORANGE PARK, FL 32067-1447
 NORTH DADE COMPUTER SOCIETY, 1712 NE MIAMI GARDEN DR., MIAMI, FL 33179
 NORTHERN FLORIDA FRANKLIN COMPUTER CLUB, 1627 LEON RD., JACKSONVILLE, FL 32216
 NORTHWEST FLORIDA 99er HC USERS GROUP, P.O. BOX 3641, PENSACOLA, FL 32616
 OTOG USERS GROUP FOR VIC 20 & COMMODORE 64, 321 ALMA ST., KISSIMEE, FL 32741
 PC USERS GROUP OF FLORIDA, P.O. BOX 9266, FT. LAUDERDALE, FL 33310
 PINELLAS IBM-PC USERS GROUP, 3401 GANDY BLVD. LOT #628, PINELLAS PARK, FL 33566, (813) 576-2608
 PINELLAS SANYO USERS GROUP, 1331 SEA GULL DR. SO., ST PETERSBURG, FL 33707
 POLK APPLE CORE, 954 W. LEXINGTON ST., LAKE LAND, FL 33801

SUNCOAST APPLE USERS GROUP, P.O. BOX 7488, CLEARWATER, FL 33518, (813)531-7190
 SUNCOAST COMPUTER ASSOCIATION, NOKOMIS, FL 33555
 S.T.A.G. (SUNCOAST TAMPA APPLE GROUP), P.O. BOX 291079, TAMPA, FL 33687
 S.W.A.C.K.S., RT. 2, BOX 607, N. FT. MYERS, FL 33903
 SOUTH FLORIDA COMPUTER GROUP, FT. LAUDERDALE SECTION, P.O. BOX 22267, FT. LAUDERDALE, FL 33335-2267
 THE SOUTH FLORIDA ZX USERS GROUP, P.O. BOX 057381, WEST PALM BEACH, FL 33405
 SPACECOAST APPLE USER'S GROUP, P.O. BOX 2112, MERITT ISLAND, FL 32952
 SPACECOAST MICROCOMPUTER, 315 INLET AVE., MERITT ISLAND, FL 32952
 SPACE COAST NEC USERS GROUP, C/O FRANK SCHNEIDER, 70 CEDAR AVE., UNIT #1, COCOA BCH, FL 32931
 SUNCOAST 99ERS TI USERS CLUB, 6623 12 TERRACE N., ST. PETERSBURG, FL 33710
 TALLAHASSEE AMATEUR COMP SOCIETY, P.O. BOX 6716, TALLAHASSEE, FL 32314
 TAMPA BAY COMMODORE CLUB, P.O. BOX 23952, TAMPA, FL 33623
 TAMPA BAY KAYPRO USERS GROUP, 14 CYPRESS DR., PALM HARBOR, FL 33563
 TAMPA BAY OSBORNE GROUP, 4455 DUHME ROAD #203, ST. PETERSBURG, FL 33708, (813) 392-6169
 TAMPA BAY TI 99ER USERS GROUP, 13097 LOIS AVE., SEMINOLE, FL 33542
 TAMPA BAY TRS-80 USERS GROUP, P.O. BOX 76001, ST. PETERSBURG, FL 33734
 THE 99ER TI USERS GROUP, P.O. BOX 1381, MAITLAND, FL 32751
 TI 99/4A P.O. BOX 1119, DAVENPORT, FL 33837
 TI PROGRAMMABLE CALCULATOR CLUB, TI PPC NOTES, P.O. BOX 1421, ARGO, FL 34294-1421
 TI SPACE COAST 99-ERS, P.O. BOX 35, MERRITT ISLAND, FL 32952
 TIMEX AND SINCLAIR BAY AREA MICROCOMPUTER USERS GROUP, P.O. BOX 644, SAFETY HARBOR, FL 33572
 TIMEX-SINCLAIR COMPUTER CLUB OF CENTRAL FLORIDA, 808 EAST ANDERSON STREET, ORLANDO, FL 32801
 TITUSVILLE COMMODORE CLUB, INC., meetings are held on the 2nd and 4th Wednesday of each month at St. Gabriel's Episcopal Church at 7pm in Titusville, FL
 TRI-COUNTY COMMODORE USERS GROUP, P.O. BOX 1151, OCALA, FL 32678
 TIS TECHNOLOGIES USER GROUP, C/O JOSE MORENO, 11331 SW 4TH STREET, MIAMI, FL 33165
 U.S.F. IBM PC USERS GROUP, SVS 409 UNIVERSITY OF SOUTH FLORIDA, 4202 E. FOWLER AVE., TAMPA, FL 33620, ATTN: DR. LOWITT
 UKALOOSA COMP BLD, 156 N. ELGIN, FT. W. BCH, FL 32548
 VIC-20 COMPUTER CLUB, C/O RAY THIGPEN, 4071 EDGEWATER DR., ORLANDO, FL 32804
 WANG USERS 'ROUND TAMPA, C/O LYNNE LAWSON at DUVAL/BIBB, INC., 200 N. WESTSHORE BLVD., TAMPA, FL 33609
 WEST BROWARD ATARI USERS GROUP, 9411 NW 10th STREET, JACARANDA LAKES, FL 33322
 WEST VAX 99ers, Box 176, ORANGE PARK, FL 32067
 Z-HUG OF FORT PIERCE, 800 VIRGINIA AVE., SUITE 4, FT. PIERCE, FL 33450
 Z-X TIMEX GROUP, 950 CYNTHIA DR., TITUSVILLE, FL 32780

GEORGIA

ACS, P.O. BOX 888771, ATLANTA, GA 30305
 ATHENS COMMODORE ENTHUSIASTS (ACE), C/O STANTON ROBERTSON, 130 ST. JAMES DRIVE, ATHENS, GA 30606
 ATLANTA 99/4A USERS GROUP, P.O. BOX 19841, ATLANTA, GA 30325
 ATLANTA C-64 USERS GROUP, 1767 BIG VALLEY LANE, STONE MOUNTAIN, GA 30083
 ATLANTA COMPUTER SOCIETY, P.O. BOX 888771, ATLANTA, GA 30356

ATLANTA COMPUTER SOCIETY ATARI SIG, 156 LEARNER COURT, MARIETTA, GA 30060
 ATLANTA CONTACT ATARI GROUP, C/O N. CRANE, 779 ROLLINGWOOD DRIVE, STONE MT., GA 30087
 THE ATLANTA NORTHEAST USER'S GROUP, P.O. BOX 98397, ATLANTA, GA 30359
 C-64 USER GROUP, ALBANY, GA, 912-436-1950
 COLUMBUS 99/4A USERS GROUP, 3434 FLINT DR., COLUMBUS, GA 31907
 CSRA COMPUTER CLUB, P.O. BOX 284, AUGUSTA, GA 30903
 MGHUG, P.O. BOX 92, WARNER ROBINS, GA 31093
 NEVADA COBAL USERS GROUP, 5536 COLBERT TRAIL, NORCROSS, GA 30092
 POLY USERS GROUP, 1437 SUGARWOOD LN., NORCROSS, GA 30093
 SAVANNAH COMP USERS GROUP, P.O. BOX 14364, SAVANNAH, GA 31404
 SIVIC-9000, 362 PEACHTREE AVENUE, ATLANTA, GA 30305
 STATESBORO TRS-80 USERS GROUP, C/O DR. RUSSELL A. DEWEY, 223 N. EDGEWOOD DR., STATESBORO, GA 30458
 TRS-80 USER'S GROUP OF ATLANTA, 1637 COLUMBIA DR., DECATUR, GA 30034

HAWAII

68XX USERS GROUP, P.O. BOX 30107, HONOLULU, HI 96820
 ALOHA 99/4A USERS GROUP, C/O PHILLIP MARKHAM 92865 PALALAI ST., MAKAKILO, HI 96706
 CHAMINADE UNIVERSITY COMPUTER WORKSHOP, 3140 WAIALAE AVE., HONOLULU, HI 96861
 HAWAII PORTABLE COMPUTER USERS GROUP, C/O COMPUTER MARKET, HECTOR ROBERTSON, PRES., 578 ALA MOANA BLVD., HONOLULU, HI 96813
 HONOLULU APPLE USERS SOCIETY, P.O. BOX 91, HONOLULU, HI 96810
 NEC USERS GROUP, 94-1026 LELEPUA PLACE, WAIAPAHU, HI 96797

IDAHO

THE COMPUTER USERS GROUP OF MAGIC VALLEY, BOX 1735, TWIN FALLS, ID 83303
 G.H.S. COMPUTER CLUB, GRANGEVILLE HIGH SCHOOL, GRANGEVILLE, ID 83530
 IDAHO FALLS COMPUTER CLUB, 1890 EAST 25TH, IDAHO FALLS, ID 83401
 POCATELLO COMMODORE USERS, C/O RICHARD HARKER, 421 S. MAIN, POCATELLO, ID 83204
 POCATELLO MICROCOMPUTER CLUB, 361 PARK WAY DR., POCATELLO, ID 83201
 POCATELLO ORGANIZATION OF WRITERS IN LOGO (O.W.L.), C/O WILLIAM J. MCCURDY, 2946 S. 5TH AVE., POCATELLO, ID 83204, 208-233-5422
 SANYO GROUP, SHERWOOD HALL, 404 SPOTSWOOD, MOSCOW, ID 83843

ILLINOIS

99/4A OWNER USERS GROUP, 8602 DORR RD., WONDER LAKE, IL 60097
 APPLE PEOPLE USERS GROUP, P.O. BOX 333, CRYSTAL LAKE, IL 60014
 APPLE TREE COMPUTER CLUB, 1544 EDGEWOOD, CHICAGO HEIGHTS, IL 60411
 THE C-64 USERS GROUP, INC., C/O DARRELL HANCOCK & DAVID TAMKIN, P.O. BOX 46464, LINCOLNWOOD, IL 60646
 CACHE, CHICAGO AREA COMPUTER HOBBYISTS EXCHANGE, 323 S. FRANKLIN #804, BOX 176, CHICAGO, IL 60606
 CENTRAL ILLINOIS TRS-80 USER GROUP, MODELS III/III/V, 159 MOSCHEL STREET, EAST PEORIA, IL 61611-2722
 CHESS PLAYER'S COMMODORE USER GROUP, 723 BARTON STREET, MT. VERNON, IL 62864
 CHICAGO AREA NORTHEAST USERS GROUP, P.O. BOX 9, PARK RIDGE, IL 60068
 CHICAGO AREA T-BUG, TANDY BUSINESS USERS GROUP, 26940 N. LONGWOOD RD., P.O. BOX 631, LAKE FOREST, IL 60045
 CHICAGOLAND ATARI USERS GROUP, 2952 N. MEADE, CHICAGO, IL 60634
 CHICAGOLAND KAYPRO USERS GROUP, 605 ILLINOIS RD., WILMETTE, IL 60091
 CHICAGO'S FIRST OSBORNE CLUB, C/O ROB TROXEL, P.O. BOX 943, LIBERTYVILLE, IL 60048
 CHICAGO TIS9/4A USERS GROUP, TRITON COLLEGE, RIVER GROVE, IL
 CIA USERS GROUP, P.O. BOX 1462, PEORIA, IL 61602
 CIRCLE CHESSCOMPUTER CLUB, P.O. BOX 63, DES PLAINES, IL 60017
 DCNEDENTAL COMPUTER GROUP, C/O E.J. NEUBURGER, 1000 NORTH AVE., WAUKEGAN, IL 60085
 EXPLORATIONS EXPLORER-85 S-100, C/O LEROY W. MARSHALL, 808 VASSAR LANE, SCHAUMBURG, IL 60193
 FOX VALLEY COMMODORE USERS GROUP, C/O HERB GROSS, 833 PROSPECT, ELGIN, IL 60120
 FOX VALLEY TRS-80 USER GROUP, 129 S. LINCOLN WAY, N. AURORA, IL 60542
 HEURISTICS USER GROUP LOCK BOX 116, BELVIDERE, IL 61008
 IBM PC/64 COMPUTER CLUB, P.O. BOX 513, CHICAGO, IL 60690
 ILLINOIS COLOR COMPUTER CLUB OF ELGIN, 720 RAYMOND STREET, ELGIN, IL
 JOLIET APPLE USERS GROUP, 101 SPRINGFIELD AVE., JOLIET, IL
 K*3 USERS GROUP, RT. 2, BOX 203, MOMBENCE, IL 60954
 LITTLE EGYPT APPLE USERS GROUP, 2130 LOGAN STREET, MURPHYSBORO, IL 62966
 MID ILLINOIS APPLE USERS GROUP, P.O. BOX 526, EFFINGHAM, IL 62401
 MID ILLINOIS COMP. RESOURCE ORGANIZATION, P.O. BOX 766, BLOOMINGTON, IL 61701
 MT. VERNON COMMODORE USER GROUP, C/O RICK VAN MATRE, 3200 MULBERRY, MT. VERNON, IL 62864
 MTPUG PASCAL/MT USERS GROUP, P.O. BOX 192, WESTMONT, IL 60559
 NATIONSERV USERS GROUP, P.O. BOX 391, FAIRFIELD, IL 62837
 NORTHERN ILLINOIS APPLE USERS GROUP, 1271 WEST DUNDEE RD., BUFFALO, GROVE, IL 60090
 NORTHERN ILLINOIS COLOR COMPUTER CLUB, 1217 KINGS COURT #12, WEST CHICAGO, IL 60185
 NORTHERN ILLINOIS COMPUTER OWNERS, 26 W. 484 BUTTERSFIELD, WHEATON, IL 60187

NORTHERN ILLINOIS IBM-PC USERS GROUP, UNION OIL BUILDING, SCHAUMBURG, IL
 ONE ON ONE, 948 PROSPECT AVE., ELMHURST, IL 60126
 PEORIA ATARI COMPUTER ENTHUSIASTS, PO BOX 32, WASHINGTON, IL 61571
 PUBLIC ACCESS MICROCOMPUTER USERS GROUP, ARLINGTON HEIGHTS MEMORIAL LIBRARY, 500 NORTH DUNTON, ARLINGTON HTGS., IL 60004
 S.I.N., SINCLAIR USERS NETWORK, 2170 OAK BROOK CIRCLE, PALATINE, IL 60067
 SANYO MID-ILLINOIS USERS GROUP (SMUG), C/O JOHN E. CAMPBELL, 3308 E. WASHINGTON STREET, EAST, PEORIA, IL 61611
 SINCLAIR END USERS' GROUP, C/O DIANA WRIGHT, 2170 OAKBROOK CIRCLE, PALATINE, IL 60067
 SOSUG-COMMODORE 64, C/O MACEY B. MCKEE, WESL INSTITUTE, WESTERN ILLINOIS UNIV., MACOMB, IL 61455
 SOUTH SUBURBAN MICROCOMPUTER USER GROUP, FREEDOM HALL, 410 LAKEWOOD BLVD., PARK FOREST, IL
 SOUTHERN ILLINOIS CRAB APPLES USERS GROUP, 2130 LOGAN STREET, MURPHYSBORO, IL 62966
 UNION PIRATES, BOX 566, GRANVILLE, IL 61326
 WACO (WOODFIELD AREA COMPUTERIST'S ORGANIZATION), QUINLAN & TYSON BLDG., SCHAUMBURG, IL 60194
 WAUKEGAN APPLE USERS GROUP, C/O CURT ROSTENBACH, P.O. BOX 8757, WAUKEGAN, IL 60079
 WESTERN ILLINOIS PET USERS GROUP, RTE. 5, BOX 75 QUINCY, IL 62301
 WILL COUNTY COMPUTER USERS, LOCKPORT LIBRARY, 8TH & HAMILTON, LOCKPORT, IL
 Z-80 STARTER KIT USER'S GROUP, 6000 PUFFER RD., DOWNERS GROVE, IL 60516

INDIANA

CAUG, CHARLES HATCHER, 2805 CHESTNUT CT., COLUMBUS, IN 47201
 CO*CO*M*U*G OF INDIANA, C/O JOHN R. STRONG, BOX 361, MATTHEWS, IN 46957
 COMMODORE COMPUTER CLUB, 3814 TERRA TRACE, EVANSVILLE, IN 47711, C/O JOHN PATRICK
 EVANSVILLE COLOR COMPUTER USERS GROUP, C/O DAVE JENKINS, 1418 E. ILLINOIS ST., EVANSVILLE, IN 47711, (812) 424-0099
 EVANSVILLE COMPUTER CLUB, PO BOX 3284, EVANSVILLE, IN 47732
 FORT WAYNE APPLE COMPUTER USES GROUP, PO BOX 11507, FORT WAYNE, IN 46858
 GROUP-OSBORNE & OTHER PORTABLES, P.O. BOX 205, BEECH GROVE, IN 46107
 HOOSIER USERS GROUP, PO BOX 34334, INDIANAPOLIS, IN 46734
 INDIANA HEATH USERS GROUP, 5113 DICKSON RD., INDIANAPOLIS, IN 46226
 INDIANA OSBORNE USERS, 317 NORTH FESS, BLOOMINGTON, IN 47401 812-339-4754
 INDIANAPOLIS SMALL SYSTEMS GROUP, PO BOX 40733, INDIANAPOLIS, IN 46240
 KOSCIUSKO COMMODORE USERS, R.R. 1, BOX 53, WARSAW, IN 46580
 LAUG - LAFAYETTE APPLE USERS GROUP, 519 SOUTH 31st ST., LAFAYETTE, IN 47904
 LOGANSPORT COMMODORE CLUB, 24 E. MIAMI AVENUE, LOGANSPORT, IN 46947 (219) 753-9353
 MACINTOSH SUPPORT GROUP, 112 S. MAIN STREET, KOKOMO, IN 46901, (317) 457-5571
 MARION APPLE COMPUTER CLUB, C/O COMPUTER DEPT., JONES MIDDLE SCHOOL, MARION, IN 46952
 MIAMI COUNTY AREA 99/4A HOME COMPUTER USERS GROUP, 163 W. 3rd, PERU, IN 46970
 MIAMI COUNTY AREA 99/4A HOME COMPUTER USERS GROUP, PO BOX 1194, PERU, IN 46970
 THE MICHIANA 99/4A UG, 2417 CREST AVENUE, SOUTH BEND, INDIANA 46614
 MUNCIE PC USERS GROUP, 2809 E. JACKSON ST., MUNCIE, IN 47303
 THE NORTH EASTERN INDIANA IBM-PC CLUB, 4422 BRIDGETOWN RUN, FORT WAYNE, IN 46884-4889
 NORTHEAST COMPUTER CLUB, PO BOX 50252, INDIANAPOLIS, IN 46250
 QDP, P.O. BOX 271, HUNTINGTON, IN 46750
 SOUTHERN INDIANA APPLE USERS GROUP, 5900 TWICKINGHAM DR., EVANSVILLE, IN 47711
 SOUTHERN INDIANA COMPUTER CLUB, RT. 1, BOX 459, MITCHELL, IN 47446
 TERRE HAUTE KAYPRO USERS GROUP, P.O. BOX 4, TERRE HAUTE, IN 47808
 THE CENTER COMPUTER ORGANIZATION, PO BOX 6031, SOUTH BEND, IN 46660-6031
 TIMEX 1000 NATIONAL SOFTWARE EXCHANGE, C/O GREG GUNTHORP, RR2 BOX 162, LaGRANGE, IN 46761
 THE MICHIANA 99/4A USER'S GROUP, 911 DOVER DRIVE, SOUT BEND, IN 46614

IOWA

AMES IOWA APPLE USERS GROUP, 213 LINCOLN WAY, AMES, IOWA 50010
 BLACKHAWK ATARI COMPUTER ENTHUSIASTS, 1200 DOREEN, WATERLOO, IA 50701
 CEDAR VALLEY 99ER USERS GROUP 288 WINDSOR DRIVE, CEDAR RAPIDS, IA 52402
 CENTRAL IOWA 99/4A USERS GROUP, P.O. BOX 3043, DES MOINES, IO 50316
 COMMODORE COMPUTER USERS GROUP OF IOWA, P.O. BOX 3140, DES MOINES, IA 50316
 COMPUTER USERS CLUB, 1101 S. 2ND AVE., MARSHALLTOWN, IA 50158
 THE EXCHANGE, C/O J. HILLSTEN, 102 E. MARKET, SUITE 1, IOWA CITY, IA 52240
 GREEN ACRES COMPUTER CLUB, RR3, BOX 126, AFTON, IA 50830
 HAEKATANI, 2564 22ND AVE., MARION, IA 53202, ATTN: JOHN WISE
 HAWKEYE - PC, IBM PC USERS GROUP, 385 COLLINS RD. N.E. SUITE 201, CEDAR RAPIDS, IA 52404
 IOWA CITY TRS-80 USERS GROUP, C/O JOHN GREEN, P.O. BOX 1494, IOWA CITY, IA 52244
 IOWA, 7 TIMBERLANE DR., CLEAR LAKE, IA 50428
 IOWA USER GROUP, 844 10 ST. N.E., MASON CITY, IA 50401
 MIDWEST ATARI GROUP, IOWA CHAPTER (MAGIC), 1125 3RD ST., NEVADA, IA 50201
 QUAD CITY COMPUTER CLUB, 215 MAIN ST., #515, DAVENPORT, IA 52801
 THE GREEN APPLES, BOX 622, CEDAR FALLS, IA 50613
 NORTHEAST IOWA HOME COMPUTER USERS GROUP (N.I.H.U.G.), 804 OLIVE STREET, CEDAR FALLS, IO 50613

KANSAS

APPLE BITS, 6140 GLENWOOD, MISSION, KS 66202
 APPLE BITS, P.O. BOX 368, MISSION, KS 66201
 THE C USERS' GROUP (INTERNATIONAL), P.O. BOX 97, MCPHERSON, KS 67460 (316) 241-1065

COMMODORE USERS GROUP OF WICHITA, ROUTE 1, BOX 115, VIOLA, KS 67149
 KANSAS CITY METRO USER'S GROUP, 7010 CAENEN AVENUE, SHAWNEE, KS 66216
 LAWRENCE ATARI COMPUTER CLUB (LACC), PO BOX 1415 LAWRENCE, KS 66044
 MIDAMERICA 99 USERS GROUP, PO BOX 2505, SHAWNEE KS 66201
 THE PLANE APPLE CLUB, PO BOX 47396, WICHITA, KS 67201
 TI INTEREST GROUP, 5522 EAST HARRY, WICHITA, KS 67218
 WICHITA APPLE CLUB, P.O. BOX 4587, WICHITA, KS 67204-0587

KENTUCKY

APPLE SIDERS OF CINCINNATI, C/O GARY JOHNSTON, PRESIDENT, 27 CRYSTAL LAKE DR., COVINGTON, KY 41017
 BLUEGRASS 99/4A COMPUTER SOCIETY, P.O. BOX 11866 LEXINGTON, KY 40578-1866
 BULLION APPLE CORPS., C/O TOM HOLDER, 7537-E McCRACKEN ST., FORT KNOX, KY 40121
 C*BUG THE COMMODORE BARDSTOWN USER GROUP, PO BOX 165, BARDSTOWN, KY 40004, 502-348-6380
 COLOR COMPUTER OF LEXINGTON, C/O SCOTT SEHLHORST, 3401 TISDALE DR., LEXINGTON, KY 40503
 KENTUCKIANA 99/4A COMPUTER SOCIETY, P.O. BOX 36246 LOUISVILLE, KY 40222
 KENTUCKY OSBORNE GROUP, C/O JOHN WARNER, PRES. 219 BURNAM CT., RICHMOND, KY 40475
 KIPUG, PO BOX 3564, LOUISVILLE, KY 40201, PRES. ROBERT D. HASTINGS, PHONE - (502)589-0254
 L.U.C.K.Y. (LOUISVILLE USERS OF COMMODORE IN KENTUCKY), C/O DAVE BOROUGHS, PO BOX 22244, LOUISVILLE, KY 40222
 OK-SANYO, 2395 S. MAIN STREET, HIGHLAND HEIGHTS, KY 41076
 OWENSBORO MICRO COMPUTER CLUB, 3936 YATES DR., OWENSBORO, KY 42301
 PORTSMOUTH TIS USERS GROUP, C/O JOHN MARION, HC 63 BOX 650, GREENUP, KY 41144 (606)473-6791
 RICHMOND MICROCOMPUTER USERS GROUP, C/O ERIC CALKIN, 302 MARTIN DRIVE, RICHMOND, KY 40475
 THE COMMODORE CONNECTION, C/O JIM KEMP, 1010 S. ELM, HENDERSON, KY 42420
 COMMODORE USERS GROUP OF MADISONVILLE (C.U.G.O.M.), C/O RICHARD BYRD, P.O. Box 849, MADISONVILLE, KY 42431

LOUISIANA

ATARI PROGRAM ENTHUSIASTS OF SLIDELL, 117 DRURY LN., SLIDELL, LA 70460, 504-649-6586
 B.R.A.G., BATON ROUGE ATARI GROUP, 1955 DALLAS DR., BATON ROUGE, LA 70806
 BATON ROUGE COMPUTER CLUB, PO BOX 80648, BATON ROUGE, LA 70898-0648
 BATON ROUGE PC USERS GROUP, C/O TOM WICHSE, 3375 KING BRADFORD, BATON ROUGE, LA 70816
 BAYOU 99 USERS GROUP, PO BOX 921, LAKE CHARLES, LA 70602
 CLUB MAC OF NEW ORLEANS, C/O SIMON L. STREIFFER, 111 ATHERTON DR., METAIRIE, LA 70005 504-831-8275
 COMMODORE PET USERS GROUP, WAYNE LOWDRY, PRES 5064 BOWDEN ST., MARRERO, LA 70072
 INTERNATIONAL APPLE CORE, PO BOX 976, DALY CITY, LA 94017
 KAYPRO USERS GROUP OF NEW ORLEANS (KUGNO), 3724 OLE MISS DRIVE, KENNER, LA 70065
 LA TRS-80 USERS GROUP, PO DRAWER 627, MONTEGUT, LA 70377
 MEGA CITY 1, PO BOX 187, JACKSON, LA 70748
 N.E.L.A.C., NORTHEAST LOUISIANA APPLE CLUB, C/O DR HARPER GAUSHELL, PRES., ROOM 280, STRAUSS HALL, NORTHEAST LOUISIANA UNIVERSITY, MONROE, LA 71205
 T.A.W.U.G., C/O JIM WILLIS, 1300 HINTON ST., WEST MONROE, LA 71291
 THE BATON ROUGE PC USERS GROUP, C/O TOM WICHSE, 3375 KING BRADFORD, BATON ROUGE, LA 70816
 GREATER NEW ORLEANS PCJ USERS GROUP, C/O PAUL RAHFELD, 1829 STALL DRIVE, HARVEY, LA 70058

MAINE

ACE, MAPLETON ELEMENTARY SCHOOL, MAPLETON, ME 04757
 APPLE-USERS IN MAINE SCHOOLS, C/O RALPH GRANGER UNIV. OF MAINE, FARMINGTON, ME 04938
 COLOR COMPUTER MAGAZINE, HIGHLAND MILL, CAMDEN ME 04843
 DOWN EAST 99ers, C/O MARK RIDEOUT, P.O. BOX 542 WESTBROOK, ME 04092 (207) 797-2104
 99/4A USER GROUP OF SOUTHERN MAINE, ATT: JOHN LEEKE, RR1 BOX 847, SANFORD, ME 04073
 SO. ME. 64, C/O ED MOORE, 9 LYNDIA ROAD, PORTLAND, ME 04103
 SOUTHERN MAINE TRS-80 USERS GROUP, 82 WELLINGTON ROAD, PORTLAND, ME 04103
 TRANET, PO BOX 567, RANGELEY, ME 04970

MARYLAND

ANNAPOLIS CHAMELEON USERS GROUP (CHUG), C/O HAL VAN ALLER, 1285 GRAFF CT #28, ANNAPOLIS, MD 21403
 ANN-APPLE USERS GROUP, 266 HILLSMERE DRIVE, ANNAPOLIS, MD 21403, ATTN: WAYNE MECKLING, (301) 263-4053
 ASSN. OF PERSONAL COMPUTER USERS, 3602 SANDY COURT, KENSINGTON, MD 20895
 ATARI USERS, P.O. BOX 7761, SILVER SPRING, MD 20907
 BALTIMORE APPLE USERS GROUP, PO BOX 13522, BALTIMORE, MARYLAND 21203
 BALTIMORE COMMODORE USERS GROUP, 3121 ABEL AVENUE, BALTIMORE, MD 21218, ATTN: PAUL MOSCITT
 BALTIMORE SANYO USERS GROUP, C/O MARK KURZMACK, 809 W. BARRE, BALTIMORE, MD 21230
 B.C.C. BETHESDA CHEVY CHASE ATARI USER GROUP, C/O ANDREW DILLER, 3316 SHEPHERD ST., CHEVY CHASE, MD 20815
 CAPITAL AREA TIMEX/SINCLAIR USERS GROUP, C/O JULES GESANG, PO BOX 725, BLADENSBURG, MARYLAND 20710
 CARROLL BRITS USERS GROUP, C/O JOHN P. SANDS, 4401 LONDON BRIDGE RD., SYKESVILLE, MARYLAND 21784
 CHESAPEAKE MICROCOMPUTER CLUB, INC., 1618 TILTON DR., SILVER SPRING, MD 20902
 COMMODORE USERS MEDIUM BALTIMORE AREA COMPUTER CLUB, C/O WILLIAM J. KOLODNER, P.O. BOX 479, REISTERSTOWN, MD 21136
 CUMBERLAND VALLEY APPLE USER'S GROUP, 806 FREDERICK ST., HAGERSTOWN, MD 21740
 E-COM USERS GROUP, INC., BOX 888, RIVERDALE, MD 20737, C/O DELILA TWCOP
 EDISON COMMODORE USERS GROUP, 4314 OXFORD DR., SUITLAND, MD 20746
 ENTRE COMPUTER CENTRE, GRAND YORK SHOPPING

CENTER, 1815 YORK ROAD, TIMONIUM, MD 21093
 FREDERICK APPLE CORE, 1835 MEADOWGROVE LANE, FREDERICK, MD 21701
 GAITHERSBURG C-64 USERS GROUP, 12937 PICKERING DR., GERMANTOWN, MD 20874
 HUG-HAGERSTOWN USERS GROUP, JOE RUTKOWSKI, PRES., 23 COVENTRY LN., HAGERSTOWN, MD 21740, (301) 797-9728
 JUMPERS 2064s (GLEN BURNIE), 7837 B&A BLVD., GLEN BURNIE, MD 21061
 NBC NEWS SANYO USERS NEWSLETTER INT'L, 816 EASLEY ST., STE. 615, SILVER SPRING, MD 20910
 MUMPS USERS GROUP, 4321 HARTWICK RD., SUITE 510, COLLEGE PARK, MD 20740
 NATIONAL CAPITAL ATARI, C/O A. LERMAN, 14905 WATERWAY DRIVE, ROCKVILLE, MD 20853
 NEC USERS GROUP, 7121 LORY LN., LANHAM, MD 20706
 ROCKVILLE COMMODORE USERS GROUP, PO BOX 8805, ROCKVILLE, MD 20856
 SOUTHERN MD COMMODORE USERS GROUP, 6800 KILLARNEY ST., CLINTON, MD 20735
 SOUTHERN MARYLAND APPLE USERS GROUP, PO BOX 398, LEXINGTON PARK, MD 20653
 TELECOMMUNICATIONS FOR THE DEAF, 5702 FOREST RD., CHEVERLY, MD 20785
 TIBUG P.O. BOX 3, PERRY HALL, MD 21128
 THE BOYDS CONNECTION, 21000 CLARKSBURG, RD., BOYDS, MD 20841
 THE COMPCATS, 680 WEST BEL AIR AVENUE, ABERDEEN, MD 21001
 THE MONTGOMERY COUNTY COMMODORE COMPUTER SOCIETY, PO BOX 2689, SILVER SPRING, MD 20902, (301) 770-6778
 TRS-80 USERS GROUP OF BALTIMORE, 102 N. COLLINGTON AVE., BALTIMORE, MD 21231
 VICQUE (LINTHICUM HEIGHTS), 105A, CODDITT ST., ANNAPOLIS, MD 21401
 WASHINGTON APPLE PI, 8227 WOODMONT AVE., SUITE 201, BETHESDA, MD 20814
 WASHINGTON AREA RAINBOW USER'S GROUP, 6415 ADELPHI ROAD, UNIVERSITY PARK, MD 20782, 301-927-0108

MASSACHUSETTS

APPLESAUCE, 118 BROOKHAVEN DR., E. LONGMEADOW, MA 01208
 APPELSEED, THE CENTRAL MASSACHUSETTS APPLE USERS GROUPS, PO BOX 62, WORCESTER, MA 01614
 BOSTON AREA TIMEX/SINCLAIR USERS GROUP, C/O RICH HEISER, 4 OX ROAD, BILLERICA, MA 01821
 BOSTON COMPUTER SOCIETY, 17 CHESTNUT ST., BOSTON, MA 02108
 THE BOSTON COMPUTER SOCIETY ATARI USER GROUP, THREE CENTER PLAZA, BOSTON, MA 02108
 BOSTON KAYPRO USERS GROUP, 3 CENTER PLAZA, BOSTON, MA 02108
 THE COMMODORE CONNECTION, C/O PAUL JENNEY, 132 NORTH RIDGE RD., WESTFIELD, MA 01085 (413)568-2228
 HIGH-TECH EXPRESS, 7 RING AVE., QUINCY, MA 02165 (617)773-0011
 M.U.N.C.H., 1241 MAIN ST., WORCESTER, MA 06103
 MICRO, PO BOX 6502, CHELMSFORD, MA 01824
 MAGNETIC (TI 99/4A), 57 RIVER RD., ANDOVER, MA 01810
 MITRE SMALL COMPUTER SOCIETY, MITRE CORP., C/O M. THEODORE, BEDFORD, MA 01730
 NBE BIRD WATCHERS' COMPUTER CLUB, 31 PLUMMER AVENUE, NEWBURYPORT, MA 01950
 NEW ENG. COMP SOC, PO BOX 198, BEDFORD, MA 01730
 NEWTON APPLE KIDS, 77 ROCKPORT RD., WESTON, MA 02193
 NORTH SHORE APPLE GROUP, PO BOX 59, ROCKPORT, MA 01966
 PET USERS GRP, WALTHAM HS. NOSTON, MA 02154
 SMUDGE (DIGITAL GROUP), C/O JEB BOSWELL, M.D., 29 KENTWORTH ST., NEWTON, MA 02158
 SYNTAX - THE HARVARD GROUP, RD. 2, BOX 457, HARVARD, MA 01451
 THE APPLE GUILD, PO BOX 371, WEYMOUTH, MA 02188
 THE BOSTON COMPUTER SOCIETY, ONE CENTER PLAZA, BOSTON, MA 02108
 TRUGEM - TRS-80 USERS GROUP OF E. MA., C/O M. SLATE, 42 OAK HILL RD., SUDBURY, MA 01776
 TRVDGEM-TRS-80 MODEL 314P USERS GROUP, C/O BILL HEISER, KENDALL SQ, BOX 891, CAMBRIDGE, MA 02142

MICHIGAN

ALTERNATE SOURCE, 704 N. PENNSYLVANIA AVE., LAN SING, MI 489

Users Groups

MUSKOGON, MI 49445
 LOWER MICHIGAN 9944 USERS GROUP, PO BOX 885.
 TROY, MI 48099
 MACE — MICHIGAN ATARI COMPUTER ENTHUSIASTS, PO
 BOX 2785, SOUTHFIELD, MI 48037
 MICHIGAN APPLE COMPUTER CLUB, PO BOX 551.
 MADISON HEIGHTS, MI 48071
 THE MONROE COMPUTER CLUB, C/O HARDWARE — SOFT-
 WARE INTEGRATIONS, 1811 North Telegraph Road, #72.
 Monroe, MI 48161-9251
 MUG DETROIT, C/O THOMAS C. MUSOLF, 13825
 HAVENHILL COURT, SOUTHGATE, MI 48195
 NATIONAL TRS-80 MODEL II USERS GROUP, PO BOX 234.
 ADA, MI 49301
 SAF USERS GROUP, C/O ROBERT DODGE, PO BOX 313.
 Mason, MI 48854
 SAULT AREA TRS-80 USERS GROUP, C/O JACK DECKER,
 1804 WEST 18TH ST. #155, SAULT STE. MARIE, MI 49783
 SCREAMING EAGLES, C/O CLARENCE PERRY, 1131 GREEN-
 BRIAR, JEROME, MI 49249
 SEMCO, SOUTH EASTERN MICHIGAN COMPUTER
 ORGANIZATION, PO BOX 02426, DETROIT, MI 48202
 SOFT TYPE, 19480 AVON, DETROIT, MI 48219
 SORCERER'S APPRENTICE, PO BOX 33, MADISON
 HEIGHTS, MI 48071
 TRI-CUG, COMMODORE USERS GROUP, PO BOX 45, BAY
 CITY, MI 48706, C/O MARK D. MEYERS
 TRI-CUG, COMMODORE, 1013 NORTH JOHNSON, BAY CI-
 TY, MI 48706
 WEST OAKLAND COMPUTER USERS GROUP (TRS-80), 1691
 EASON, PONTIAC, MI 48054
 D-KUG THE DETROIT METROPOLITAN KAYPRO USERS
 GROUP, P.O. BOX 5187, WARREN, MI 48090-5187
 Tinfoilaters USERS GROUP, 5909-2 AMBASSADOR DRIVE,
 SAGINAW, MI 48603
 MIDLAND APPLE CLUB 1710 W. St. Andrews Road, Midland,
 MI 48640

MINNESOTA

CPM USERS GROUP OF MINNESOTA, C/O JONATHAN
 THOMAS, 8040 N.E. GROVELAND RD., MONDSVIEW, MN
 55432
 HEARTLAND AREA COMPUTER COOPERATIVE, RT. 4, BOX
 204, LITTLE FALLS, MN 56345
 MC-10 USERS GROUP, BOX 40 Erskine, MN 56535
 METRO-AREA COMMODORE COMPUTER CLUB, BOX M.
 MENDOTA, MN 55150 (ST. PAUL AREA) 612-729-0232
 MINN'APPLES, PO BOX 796, HOPKINS, MN 55343
 MINN COMP SOC, 8100 34TH AVE. S., MINNEAPOLIS, MN
 55401
 MSP 99 USERS GROUP, PO BOX 12351, ST. PAUL, MN
 55112
 99 COMPUTER GROUP, 5916 FRANCE AVE. S., EDINA, MN
 55410
 ORGANIZATION OF SOUTH EASTERN MINNESOTA OHIO
 SCIENTIFIC USERS (OSMOSUS), 3218 SILVER LAKE RD.,
 MINNESOTA, MN 55418
 SMUG (ST. PAUL — MINNEAPOLIS USERS GROUP —
 HEATH), 8895 72ND ST., COTTAGE GROVE, MN 55016
 THE APPLERS, C/O KEITH KRUEGER, RR 2 BOX 106, LAKE
 CITY, MN 55041 (612)345-4380
 THE REAL APPLE, 395 WOODLAWN AVE., ST. PAUL, MN
 55105

MISSISSIPPI

ATARI USERS GROUP, 4550 W. BEACH BLVD., BILOXI, MS
 39534, 601-388-4709
 BILOXI COMMODORE USERS GROUP, 4550 W. BEACH
 BLVD., BILOXI, MS 39534, 601-388-4709
 FRANKLINAPPLE USERS GROUP, 4550 W. BEACH BLVD.,
 BILOXI, MS 39534, 601-388-4709
 GUM TREE COMPUTER CLUB TRS-80 & APPLE, 2606
 PEMBERTON, TUPELO, MS 38801, C/O RICHARD SWINEY
 HATTIESBURG COMPUTER USER GROUP, C/O BRUCE
 DINOFF, HATTIESBURG, MS 601-545-1436
 HUB COMPUTER USERS GROUP, INC., C/O ELVIS B. GATES
 JR., P.O. BOX 3713, HATTIESBURG, MS 39401
 IBM USER GROUP, 3002 HWY. 90 E., OCEAN SPRINGS
 MS 39564, 601-875-1173
 IBM USER GROUP, 4550 W. BEACH BLVD., BILOXI, MS
 39534, 601-388-4709
 MCPIM, MICRO COMPUTER PROGRAMMERS OF
 MISSISSIPPI, C/O H. WINFRED SMITH 499 PEAR OR
 CHARD RD., APT. 5-B, RIDGELAND, MS 39157
 METRO-JACKSON MICROCOMPUTER USERS GROUP, 105
 HERON COURT, BRANDON, MS 39042
 MISSISSIPPI STATE UNIVERSITY MICROCOMPUTER USERS
 GROUP, C/O DR. GENE BOGGS MSU COMPUTER CENTER
 PO DRAWER CC, MISSISSIPPI STATE, MS 39762
 601-325-2942
 O.S.U.G., OCEAN SPRINGTHE COASTAL AREA ATARI
 USERS GROUP, PO BOX 5098, BILOXI, MS 39534, ATTN:
 LEE HITCHESON (601) 388-2836
 SOFTWARE SOURCE, 4550 W. BEACH BLVD., BILOXI, MS
 39531
 TRS-80 USERS GROUP, 3002 HWY 90 E. OCEAN SPRINGS,
 MS 39564, 601-875-1173
 TRS-80 USERS GROUP, 4550 W. BEACH BLVD., BILOXI,
 MS 39534, 601-388-4709
 UNIVERSAL COMPUTER SERVICES, 3002 HWY 90E, OCEAN
 SPRINGS, MS 39564
 VIC-20 USERS GROUP, 3002 HWY 90E, OCEAN SPRINGS,
 MS 39564, 601-875-1173
 VIC-20 USERS GROUP, 4550 W. BEACH BLVD., BILOXI,
 MS 39534, 601-388-4709

MISSOURI

ACE-ST. LOUIS WEST, P.O. BOX 6783, BRENTWOOD, MO
 63144 (314) 647-3290
 APPLE USERS GROUP, 411 East Broadway, COLUMBIA, MO
 65201
 APPLEJACKS OF ST. LOUIS, C/O KENT D. WILBUR, 12 JENY
 LIND DR., ST. PETERS, MO 63376
 COLUMBIA KAYPRO USERS GROUP, CMS STORE, HITT &
 BROADWAY, COLUMBIA, MO 65201
 COMPUTER USERS' RESOURCE EXCHANGE, P.O. BOX
 11065, SPRINGFIELD, MO 65808
 GREATER KANSAS CITY TRS-80 USERS, PO BOX 27,
 BELTON, MO 64012
 JOPLIN APPLE USER GROUP, 1903 E. 36TH, JOPLIN, MO
 64801
 JOPLIN SINCLAIR USERS GROUP, P.O. BOX 2221, JOPLIN,
 MO 64803
 KANSAS CITY AND INDEPENDENCE PET USERS GROUP,
 10524 LAKE DR., INDEPENDENCE, MO 64053
 NORTH COUNTY TRS-80 USERS GROUP, 12 VILLE DON-
 NA COURT, HAZZI WOOD, MO 63042

ST. LOUIS COMPUTER GROUP, 5600 CLAYTON RD., ST.
 LOUIS, MO 63110
 ST. LOUIS 99ERS, 3429 PESTA LOZZI, ST. LOUIS, MO
 63118
 SLACC, POB 28924, ST. LOUIS, MO 63132
 SLKUG — ST. LOUIS KAYPRO USERS GROUP, C/O JOAN-
 NA DANEMAN, BOX 31126, ST. LOUIS, MO 63131
 TIMEX SINCLAIR USERS GROUP OF GREATER KANSAS CI-
 TY, C/O CARL MUTCH, JR., 4701 N.W. LINDEN RD., N. KAN-
 SAS CITY, MO 64151 816-587-8820
 THE TRS-80 MODEL II, 12, & 16 INTERNATIONAL USERS
 GROUP, C/O ROBERT SKOLK, 8437 BELLEVUE, KANSAS
 CITY, MISSOURI 64114
 TEXAS INSTRUMENTS LICKING USERS' GROUP (LUG'S),
 PO BOX 439, LICKING, MO 65542-0439

MONTANA

BIG SKY APPLE USERS GROUP, 3400 5TH AVE. SOUTH,
 GREAT FALLS, MT 59405
 BIG SKY 99ers, PO BOX 1044, GREAT FALLS, MT 59403

NEBRASKA

THE BIG RED APPLE CLUB, 1105 S. 13TH ST., #103, NOR-
 FOLK, NE 68701 (402)379-4680
 CROSS RDS. 99ers COMPUTER GROUP, PO BOX 293,
 YORK, NE 68467
 THE GREATER OMAHA COMMODORE USERS GROUP, P.O.
 BOX 628, BELLEVUE, NE 68005-0628 (402) 292-2753
 LINCOLN MICRO-COMPUTER CLUB, 1209 GARBER AVE.,
 LINCOLN, NE 68521
 LNW USERS, 4345 MANCHESTER RD., GRAND ISLAND, NE
 68801
 MID AMER. COMP. COMM FED S.L. BELLEVUE, NE 68005
 MID-AMERICA COMPUTER HOBBYISTS (MACH), PO BOX
 13303, OMAHA, NE 68113
 OMAHA APPLE SAUCE, 3103 S. 32 AVE., OMAHA, NE 68105
 SOUTH CENTRAL NEBRASKA APPLE COMPUTER CLUB
 (SNACK), C/O ROCKY & DOROTHY FRIEND, PO BOX 2064,
 HASTINGS, NE 68901

NEVADA

CLONE, C/O LEE HUNTLEY, 6438 E. GOLDMINE DR., LAS
 VEGAS, NV 89115
 LAS VEGAS TRS-80 USERS GROUP, 1941 ASHNER LN.,
 LAS VEGAS, NV 89115
 THREE STATE KAYPRO, C/O ALEXANDER PROKOP, 1350
 DAVIDSON WAY, RENO, NV 89503
 TIMEX UG OF LAS VEGAS, C/O SVEN J. NILSSON, 2405
 HOWARD DRIVE, LAS VEGAS, NV 89104

NEW HAMPSHIRE

HUGZUG OF NEW HAMPSHIRE, C/O DEAN HAYDEN-MACY,
 61 STEARNS ROAD, AMHERST, NH 03031
 NEW HAMPSHIRE 99ERS USER GROUP, INC., PO BOX
 7199, HEIGHTS STATION, CONCORD, NEW HAMPSHIRE
 03301
 NEW HAMPSHIRE ATARI COMPUTER CLUB, 346 S. TAYLOR
 ST., MANCHESTER, NH 03103
 PEM-BAKER COMPUTER USERS GROUP, RFD 2 BOX 399,
 PLYMOUTH, NH 03264
 SEACOAST MICRO-COMPUTER CLUB, 447 CENTRAL
 AVENUE, DOVER, NH 03820

NEW JERSEY

AMATEUR COMPUTER GROUP OF NJ, PO BOX 319, SOUTH
 BOUND BROOK, NJ 08880, ATTN: RUSSEL CORR
 AMATEUR COMPUTER GROUP OF NEW JERSEY APPLE
 CLUB, 5 BAYBERRY CLOSE, PISCATAWAY, NJ 08854
 APPLE JACK, 7 STONEHENGE RD., MORRISTOWN, NJ
 07960, 201-538-8746
 BERGEN-ROCKLAND KAYPRO USERS GROUP, C/O COM-
 PTRAN PLUS, 551 LIVINGSTON STREET, NORWOOD, NJ
 07648 201-768-2060
 CENTRAL JERSEY COMPUTER CLUB, C/O RIHARD H.
 WILLIAMS, RD. #1 BOX 147, HOPEWELL, NJ 08525
 COMPUTER CLUB OF OCEAN COUNTY, C/O STUART Mac-
 DONALD, 6 WHITAKER DR., TOMS RIVER, NJ 08753
 COMPUTER WORKSHOP ATARI USERS GROUP, 1200 HAD-
 DONFIELD RD., CHERRY HILL, NJ 08002
 ENING APPLE USERS GROUP, C/O BOB AUSTIN, NJ
 SCHOOL FOR THE DEAF, WEST TRENTON, NJ 08628
 THE FIRST BASIS USERS GROUP (1ST BUG) C/O JOHN
 FLODY, 4 TOWER LANE, MORRISTOWN, NJ 07960
 HUDSON COUNTY COMMODORE UG, C/O DAVE
 WESTPHALEN, 308 PALISADE AVE., UNION CITY, NJ 07087
 JERSEY APPLE UG, SOUTH ORANGE, NJ (201)763-8170 FOR
 INFORMATION CALL WK NIGHTS 6-10
 JERSEY ATARI COMPUTER GROUP, 58 DEWEY AVE., HIGH
 BRIDGE, NJ 08829
 JERSEY SHORE COMMODORE USER GROUP, C/O ROBERT
 MCKINLEY, JR. 89 STRATFORD ROAD, TINTON FALLS, NJ
 07724
 LABCOM USERS GROUP, DARTMOUTH-HITCHCOCK
 MEDICAL CENTER, HANOVER, NJ 07376
 JERSEY ATARI COMPUTER SOCIETY, C/O NEIL SHERMAN,
 1908 WEST POINT DR., CHERRY HILL, NJ 08003
 MID-JERSEY EXECUTIVE COMPUTING GROUP, C/O DR. C.T.
 PHAN, RIDGE COLLEGE, POB 6400, LAWRENCEVILLE, NJ
 08648
 MID-JERSEY PC GROUP, GRADUATE PROGRAM FOR AD-
 MINISTRATORS, POB 6400, LAWRENCEVILLE, NJ 08648
 MONMOUTH APPLE CORPS INC., PO BOX 3356, WEST
 END, N.J. 07740, (201) 229-8299
 MORRIS AREA COMMODORE UG, P.O. BOX 492, MT.
 TABOR, NJ 07878
 MORRIS COUNTY TIMEX USERS GROUP, LARRY SPENCER,
 6 FOREST CT., MORRIS PLAINS, NJ 07950
 NEW COMMODORE * 4,64, BOX 281, POMPTON PLAINS,
 NJ 07444
 NEW JERSEY LOTUS USERS' GROUP, C/O NOVA, 411
 POMPTON AVENUE, CEDAR GROVE, NJ 07009
 NEW JERSEY USERS GROUP, RD-1, 40 WOODLAWN TER-
 RACE, LK. HOPATCONG, NJ 07849
 NEW YORK METRO LUBE GROUP, 1 MARK RD.,
 KENILWORTH, NJ 07033
 9900 USERS GROUP, PO BOX K, MOORESTOWN, NJ 08057
 NORTH JERSEY TRS-80 USERS GROUP, C/O DR. HOWARD
 SILVER, FAIRLEIGH DICKINSON UNIVERSITY, TEANECK, NJ
 07666
 NORTH JERSEY COMPUTER USERS GROUP, PO BOX 382,
 SPARTA, NJ 07871
 NORTHERN NEW JERSEY 99er, PO BOX 515, Bedminster,
 NJ 07921
 NORTHERN NJ COMPUTER CLUB, C/O HERMAN SACHS,
 6 BRYSON RD., FAIRLAWN, NJ 07410

PRINCETON APPLE USERS GROUP (P.A.U.G.), P.O. BOX
 413, ROCKY HILL, NJ 08553 609-921-0043
 THE APPLE COMPUTER CLUB, C/O R.L. BARNES, RM
 6D-214, BELL LABS, MURRAY HILL, NJ 07974
 THE CENTRAL JERSEY 99 COMPUTER CLUB, PO BOX 673
 BRICK, NJ 08723, C/O THEODORE E. MOZER, III
 THE COMPUTERINVESTOR USERS GROUP, 36 HIGHLAND
 AVENUE, METUCHEN, NJ 08840
 TI DELEWARE VALLEY USERS GROUP, P.O. BOX 6240
 STANTON BRANCH, WILMINGTON, DE 19804 ATTENTION:
 NEW JERSEY CHAPTER
 TI USERS, NEWJUG, 981 TOWNLEY AVE., UNION, NJ 07083
 TRS-80 USERS GROUP OF CHERRY HILL, PO BOX 61, NEW
 LISBON, NJ 08064
 TRS-80 USERS GROUP OF CHERRY HILL, BRYAN PcpHEE —
 PRESIDENT, 418 VIRGINIA DR., BROWNS MILLS, NJ
 08015
 TRS-80 USERS GROUP OF MONMOUTH COUNTY, 80
 BINGHAM AVENUE, RUMSON, NJ 07760

NEW MEXICO

APPELQUERQUE COMPUTER CLUB, 1213 CALIFORNIA NE,
 ALBUQUERQUE, NM 87110
 FIRST ATTACHE/2001 USER GROUP FAUG, C/O CHARLES
 RAISCH, PO BOX 2315, CORRALES, NM 87048-2315
 ROCKS GROUP, GALLUP AEROSTAT SOCIETY, 1203 KIVA,
 GALLUP, NM 87301
 THE SANTA FE COMPUTER CLUB, PO BOX 2261, SANTA
 FE, NM 87504

NEW YORK

ADAM MICRO-HACKERS, 236 McKIBBEN STREET, SUITE
 19, NY, NY 11206
 AMA, 135 W. 50TH ST., NY, NY 10020
 ANSI, 1430 BROADWAY, NY, NY 10018
 APPLE BYTERS CORPS, C/O HANK KOLK, 171 TREEHAVEN
 RD., BUFFALO, NY 14215
 APPLE-CPIM-IBM UG, 737 EMPIRE AVENUE, FAR
 ROCKAWAY, N.Y. 11691
 BASIS 108 USERS, C/O PERSONAL COMPUTER SERVICE,
 52 JACKSON DRIVE SOUTH, POUGHKEEPSIE, NY 12603
 BITS, BYTES, & PIECES UG, 1103 ARROWBEND DR.,
 WILLIAMSON, NY 14589
 BROOKLYN COMMODORE 64 UG, C/O MALCOLM GOT-
 TESMAN, 1735 E. 13TH STR., BROOKLYN, NY 11229
 BROOKLYN USERS GROUP, 1735 EAST 13TH STREET, APT
 7N, BROOKLYN, NY 11229-1950
 CPA APPLE UG, C/O BARRY LEIF, 469 SEVENTH AVE., NY,
 NY 10018
 CPIM/APPLE UG, 737 EMPIRE AVENUE, FAR ROCKAWAY,
 NY 11691
 CPIM UG, 345 E. 86 ST., NY 10028
 CPM USER GROUP, RT. 1 BOX 244, MILL RD., YAPHANK,
 NY 11980
 COCO NEWS, 3 BOHR CT., SPRING BAILEY, NY 10977
 COLOR COMPUTER CLUB OF NEW YORK, 347 WEST 48TH
 ST., NYC 10036
 THE COMPUTER & INFORMATION SOCIETY, C/O DANIEL
 J. LUGO, 145 W. 86th St. NY, NY 10024
 COMPUTER CLUB OF AMERICA AND EXCHANGE, POB 784,
 BRONX, NY 10473
 CRAB APPLE, POB 268, WEST NYACK, NY 10994
 DATA GENERAL USERS NETWORK, C/O DAVID BELLIN,
 POB 929, FLUSHING, NY 11354-0929
 DIGITAL GROUP INDEPENDENT USER'S GROUP, POB 316,
 WOODMERE, NY 11598
 EXPLORER 85 CLUB, C/O JUAN VALENCIA, 142-15 CHERRY
 AVE. FLUSHING, NY 11355
 FORTH INTEREST GROUP, C/O TOM JUNG, POB 452, EAST
 ELMHURST, NY 11369
 FORTH INTEREST GROUP, C/O TOM JUNG, 7-04 166
 STREET, 88, BEECHURST, NY 11357
 FUTURE COMPUTER PRODUCTS UG, 67 MAPLE ST.
 NEWBURGH, NY 12550
 HEATH UG OF NJ, C/O RALPH BRADBURN, 300 RT. 59,
 TALLMAN, NY 10982
 HEATH UG OF NJ (HUGNJ), C/O RALPH BRADBURN, 300
 RT. 59, TALLMAN, NY 10982
 IBM PC USERS GROUP, 290 CENTRAL AVENUE, SUITE 113,
 LAWRENCE, NY 11559 (516) 239-8885
 INTERCAL, POB 254, SCARSDALE, NY 10583
 JERI-HUG, 'THE HEATH UG', C/O HEATHKIT ELECTRONICS
 15 JERICHO TURNPIKE, JERICHO, NY 11753
 JINSAH UG, C/O JAMES P. ISCARO, PRES. BOX 274, RIVER
 DALE, NY 10463
 KAYPRO UG, POB 100, MALVERNE, NY 11565
 KINGS BYTE NEWSLETTER, 1063 EAST 84TH STREET
 BROOKLYN, NY 11236
 LION, LONG ISLAND OSBORNE NETWORK, POB 190,
 OCEANSIDE, NY 11572
 LIST (LONG ISLAND SINCLAIR-TIMEX) GROUP, 10 IDE
 LAY DRIVE, CENTERPORT, NY 11721
 LNW UG, RT. 1 BOX 244, MILL RD., YAPHANK, NY 11980
 LONG ISLAND COMPUTER ASSOC., POB 71, HICKSVILLE,
 NY 11802
 LONG ISLAND NEC UG, 75 WEAVING LN., WANTACH, NY
 11793
 MCCONVILLE IBM PC USERS GROUP, C/O EDWARD DE
 VARENNES, 27 NORWOOD STREET, ALBANY, NY 12203
 METRO TRS-80 UG, C/O GEORGE MUEDEN, 310 WEST 106
 STREET, 15D, NYC 10025
 ATARI COMPUTER OWNERS OF ROCHESTER, NY (ACORN),
 P.O. BOX 855, FAIRPORT, NY 14450
 COLOR COMPUTER USERS GROUP OF ROCKLAND P.O.
 BOX 131, MONSEY, NY 10952-0131
 CPIM OSBORNE KAYPRO EXCHANGE USERS GROUP
 (COKEUG) C/O LAWRENCE C. YARNELL, JR., APO NEW YORK
 09086-5000
 THE EDUCATORS' USERS FORUM C/O PAM HALE, 50A
 SOUTH MAIN STREET, SPRING VALLEY, NY
 MICRO-COMPUTER BUSINESS UG, 161 W. 75 ST., NYC
 10023

MOD 4 UG, 1578 E. 26 ST., BROOKLYN, NY 11229
 N.E.C.A., 11 DICKENS AVE., DIX HILLS, NY 11746
 NATIONAL ADVANCED STOCK/COMMODITY MICRO
 GROUP, LOCK BOX 407, NYC 11362
 NEW YORK PERSONAL COMPUTER INC., SUITE 614, 8C
 WALL STREET, NEW YORK, NY 10005
 NYU DISABLED STUDENT SERVICES, 566 LAGUARDIA
 PLACE, ROOM 701, NY, NY 10012
 NY AMATEUR COMPUTER CLUB, INC., POB 106, CHURCH
 ST. STATION, NYC 10008
 NY SANYO USER GROUP, POB 182, TIMES PLAZA STA-
 TION, NY 11217
 NORTH COUNTY TRS-80 2 & 16 CLUB, 24 WOODLAND TER-
 RACE, LAKE PLACID, NY 12946
 OLYMPIAN COMPUTER CLUB, C/O PAUL A. MULLENS, BOX
 4277, APO NY 09223
 OMEGASOFT ENTERPRISES, 27 BANK STREET, LEROY, NY
 14482 (716) 758-8814
 PC BOOKS USER GROUP, (IBM/APPLE/COMMODORE) P.O.
 BOX 100, HENRIETTA, NY 14692

THE PEOPLE TO PEOPLE SHUTTLE USERS GROUP -1,
 COMMODORE, P.O. BOX 1292, LOCKPORT, NY 14094
 PET PLACE, C/O BRIAN SPECTOR, 6 CAIL DR., E
 ROCKAWAY, NY 11518
 RICHARD G. WINSTON, DDS, 135 3RD ACENUE, MINEOLA
 NY 11501
 ROCHESTER AREA COMP, 1 LOMB MEM DR., ROCHESTER
 NY 14623
 S-100/CPM USER'S GROUP, POB 106, CHURCH ST. STA-
 TION, NYC 10008
 SCHENECTADY HUG, C/O T. BUDGE, 75 SANDERS, ST.
 SCOTIA, NY 12302, WALTER HIPPLE 385-5660
 SINCLAIR COMPUTER USER'S SOCIETY (SINCUS), POB 36
 JOHNSON CITY, NY 13790
 SMUG TI UG, C/O RICH CLEMENTS, DEPT. 444, COLESVILLE
 RD., BINGHAMTON, NY 13902
 SOUTHERN TIER APPLE USER'S GROUP, (S.T.A.U.G.), POB
 G. BRESFORT, NY 14816
 STATEN ISLAND APPLE UG, POB 141, STATEN ISLAND,
 NY 10305
 SUFFOLK COUNTY COMPUTER ASSOCIATION, RT. 1, BOX
 244, MILL RD. YAPHANK, NY 11980
 SYBIL'S M.U.G. UG, RT. 52, CARMEL, NY 10512
 SYRACUSE APPLE UG, POB 6586, SYRACUSE, NY 13217
 SYRACUSE ATARI UG, 103 WOODSPATH ROAD, LIVER
 POOL, NY 13088
 SYRACUSE OSBORNE UG (SOUP), C/O MARTIN SHAPIRO
 601 CLAREDON ST., SYRACUSE, NY 13201
 T.I. 99ER UG, POB 544, Deer Park, NY 11729
 THE BASIS GROUP INT'L, NY CHAPTER, C/O BILL BASCH
 127 MADISON AVE., 2ND FLOOR, NYC 10016
 THE DATAMERICA COMPUTER USER'S GROUP, 312 E. 84
 ST. #1A, NYC 10028
 THE ROCHESTER 80 COMPUTER CLUB INC., POB 15476
 ROCHESTER, NY 14615
 THE SYRACUSE APPLE UG, POB 6586, SYRACUSE, NY
 13217
 TRI-COUNTY NY, NY CROMENCO U.G., C/O CHARLES PER-
 RELLA, 45F RT 303, VALLEY COTTAGE, NY 10989
 TRS-80 USER GROUP, RT. 1, BOX 244, MILL RD.,
 YAPHANK, NY 11980
 TRS-80 UG OF CENTRAL NY, 2362 EAST LAKE ROAD,
 SKANEATELES, NY 13152
 U.A.U.G., C/O UPSTATE COMPUTER SHOP, 99 COMMER-
 CIAL DR. 5A, WHITESBORO, NY 13492
 UPSTATE 9944 UG, POB 13522, ALBANY, NY 12212
 UPSTATE NY ATARI COMPUTER ENTHUSIASTS, C/O DALE
 WHITNEY, BOX 232 MORRIS BLVD., CONKLIN, NY 13748
 VAN RENSSALAER COMPUTER USER GROUP, ST. AN-
 THONY ONHUDSON, WASHINGTON AVE., RENSSALAER, NY
 12144
 WESTCHESTER FAIRFIELD AMATEUR COMPUTER SOCIETY,
 R.R. 1, BOX 176, POUND RIDGE, NY 10576
 WESTCHESTER PET USER GROUP, POB 1280, WHITE
 PLAINS, NY 10602
 WESTERN NEW YORK ATARI USER'S GROUP, P.O. BOX 59
 BUFFALO, NY 14216
 MICROPRO USERS GROUP OF AMERICA, 140 RIVERSIDE
 DRIVE, NEW YORK, NY 10024
 N.Y. ON-LINE COMMODORE USER GROUP, BOX 8255,
 JACKSON HEIGHTS, NY 11372
 LONG ISLAND VIC SOCIETY (LIVICS), C/O LAWRENCE
 STEFANI, 20 SPYGLASS LANE, EAST SETAUKET, NY 11733

NORTH CAROLINA

ACUSOFT ATARI COMPUTER USERS SOCIETY OF FAYET-
 TEPPE, PO BOX 1117, FAYETTEVILLE, NC 28302
 APPLE CLUB OF FAYETTEVILLE, PO BOX 70, FAYET-
 TEPPE, NC 2802
 CAPE FEAR COMPUTER AND HEATH USER'S GROUP, 2454
 VANDEMERE AVENUE, FAYETTEVILLE, NC 28304
 CAROLINA APPLE CORE, PO BOX 31424, RALEIGH, NC
 27622
 CHARLOTTE 9944 USERS, 2637 CONNEMARA DR., MAT-
 THEWS, NC 28105
 CHARLOTTE 9944A USERS, 2637 CONNEMARA DR., MAT-
 THEWS, NC 28105
 CHARLOTTE ATARI-USERS GROUP, 5911 BROOKHAVEN
 ROAD, NC 28208 (704) 333-0702
 GEMS, GREENSBORO EIGHTY MICROCOMPUTER SOCIE-
 TY, PO BOX 10014, GREENSBORO, NC 27404
 GUILFORD 99ER USERS GROUP, (TI 9944A), PO BOX 21691
 GREENSBORO, NC 27420
 MICRO COMPUTER USERS CLUB, RT. 1 BOX 134-A, BOON
 VILLE, NC 27011
 MICRO COMPUTER USERS GROUP OF RALEIGH, 5225 N.
 BOULEVARD, RALEIGH, NC 27604
 NATAHALA COMPUTER CLUB (99'ERS), RT. 3, BOX 64-E
 ROBINSVILLE, NC 28771
 NATIONAL SOCIETY OF MICROCOMPUTER USERS AND
 GROUPS, PO BOX 8084, GREENVILLE, NC 27834
 PIEDMONT TRIAD ATARI USERS GROUP, 6104 KNIGHT
 ROAD, GREENSBORO, NC 27410
 RALEIGH COLOR COMPUTER CLUB, PO BOX 681, GARNER
 NX 27259 C/O DAVID ROPER
 RALEIGH OSBORNE COMPUTER CLUB, PO BOX 53754
 FAYETTEVILLE, NC 28305
 TACC, POB 17523, RALEIGH, NC 27619
 TACS, PO BOX 7073, GREENSBORO, NC 27417-0073
 TIMEX USERS GROUP, RT. 3 BOX 64E, ROBINSVILLE, NC
 28771
 TRIAD AMATEUR COMPUTER SOCIETY, PO BOX 7073,
 GREENSBORO, NC 27417
 TRIANGLE SINCLAIR USER'S GROUP, C/O DOUGLAS
 DEWEY, 206 JAMES ST., CARRBORO, NC 27510
 WILMINGTON TRS-80 USERS GROUP, 1605 PRINCESS ST.,
 WILMINGTON, NC 28401
 WILSON TRS-80 USERS' GROUP, PO BOX 336, LUCAMA,
 NC 27851
 CUMBERLAND COUNTY KAYPRO-CPM PORTABLES USERS
 GROUP, 5102 CATALPA ROAD, FAYETTEVILLE, NC 28304

NORTH DAKOTA

BASE COMPUTER HOBBYISTS GROUP, C/O 101-1 AVION
 WAY, MINOT AFB, ND 58704
 GRAND FORKS IBM PC U.G., 717 IVES STREET, BUXTON,
 ND 58218
 M.A.D. H.U.G. 9944A, DENNIS SCHJELDAHL, 509 REEVES
 DRIVE, GRAND FORKS, ND 58201
 TRS-80 COLOR COMPUTER CLUB, PO BOX 218, MINOT,
 ND 58701

OHIO

A-BUG-BYTE, C/O RON GABLE, 10781 W. NATIONAL RD.,
 BROOKVILLE, OH 45309
 ACE (ATARI UG OF COL.), 6632 LISAMARIE RD., COLUM-
 BUS, OH 43229, C/O ED BILL ECKERT
 AD A STAR (ATARI MICROCPU NET), C/O JACK MCKIRGAN
 2 WDBNG, 4749 SR 207 NE WASHINGTON C.H., OH 43160
 AIM-85 USER'S GROUP, C/O DONALD CLEM, RR #2,
 SPENCERVILLE, OH 45887
 AKRON IBM PC CLUB, BOX 1205, AKRON, OH 44309

AMATEUR COMPUTER SOCIETY OF CENTRAL OHIO
 (ACSCO), PO BOX 28606, COLUMBUS, OH 43228-0606
 APPLE SIDERS, C/O DAN MCKEE, 5001 RELLEUM AVE., CIN-
 CINNATI, OH 45238
 APPLE-DAYTON USERS GROUP, POB 1666, FAIRBORN, OH
 45324
 ATARI USERS GROUP, 6895 N. HIGH ST., WORTHINGTON,
 OH
 BUCKEYE 99ers, 2424 MANSFIELD-LUCAS RD.,
 MANSFIELD, OH 44903
 CABUG (CLEVELAND AREA BBS USERS GROUP, C/O COM-
 PUTER EXPERIENCE, 36212 EUCLID AVENUE,
 WILLOUGHBY, OH 44094
 CCC (RS COLOR CPU), PO BOX 478, CANFIELD, OH
 44406-0478, C/O ED GINNY KOMARA
 CENTRAL OHIO ADAM USERS GROUP, 730 THURBER DR.,
 APT. N, COLUMBUS, OH 43215
 CENTRAL OHIO COMMODORE USERS GROUP, P.O. BOX
 28229, COLUMBUS, OH 43228-0229
 CENTRAL OHIO 99ers, 1456 GRANDVIEW AVE., COLUM-
 BUS, OH 43212
 CIN-DAY TI USER GROUP, PO BOX 519, WESTCHESTER,
 OH 45069-0519
 CINCINNATI COMP CLUB, 6515 KENVIEW DR., CINCINNATI,<

Users Groups

(918) 663-3436
BARTLESVILLE MACINTOSH USERS GROUP (BMUG), C/O MARION DELAHAN, 6523 TRAIL DRIVE, BARTLESVILLE, OK 74006
BIG RED APPLE GROUP, 2301 W. MAIN ST., NORMAN, OK 73069
CPM-OK USERS GROUP 3100 OVERHOLSER DRIVE, OKLAHOMA CITY, OK 73127
OKLAHOMA LOCAL OSBORNE GROUP, PO BOX 1851, BETHANY, OK 73008
TIMEX SINCLAIR USERS GROUP, C/O BILL CASEBEER, PO BOX 372, OLOGAH, OK 74053
TULSA AREA COMMODORE USERS GROUP, C/O CRAIG BOWMAN, SECRETARY, DONALD BARNWELL, PRESIDENT, 7804 N. 117TH E. AVE., OWASSO, OK 74055 (918) 727-9755
TULSA COMPUTER SOCIETY, PO BOX 1133, C/O SI HAWK, TULSA, OK 74105, 918-446-5219
NATIONAL PCJ USER'S GROUP, C/O DAVID WOLLMANN, 1504 E. 71ST PLACE #1308, TULSA, OK 74136
TULSA REGIONAL ATARI COMPUTER ENTHUSIASTS (T.R.A.C.E.), P.O. BOX 4823, TULSA, OK 74159

OREGON

APPLE BLOSSOM, PO BOX 266, DILLIARD, OR 97432
APPLEEUGENE, PO BOX 3267 EUGENE, OR 97403
ATARI COMPUTER ENTHUSIASTS, 3663 VINE MAPLE ST., EUGENE, OR 97405, C/O MICHAEL DUNN
COOS COMPUTER CLUB, P.O. BOX 4066, EASTSIDE, OR 97420
CPIM USER'S GROUP NORTHWEST, 1346 N.E. 28TH, PORTLAND, OR 97232
DOCTOR'S COMPUTER COMMITTEE, 2188 SW PARK PLACE, PORTLAND, OR 97205
EUGENE 99/4A USER GROUP, P.O. BOX 11313, EUGENE, OR 97440
EUGENE PCJ CLUB, P.O. BOX 3695, EUGENE, OR 97403
JACKSON AMATEUR COMPUTER SOCIETY, 2355 CAMP BAKER RD., MEDFORD, OR 97501
MICRO-CALC BUSINESS USERS GROUP, PO BOX 12039, SALEM, OR 97309
NORTHWEST SANYO ENTHUSIASTS, 5687 H SE INTERNATIONAL WAY, MILWAUKEE, OR 97222
PACIFIC NORTHWEST COMMODORE USERS GROUP, PO BOX 2310, ROSEBURG, OR 97470
PORTLAND AREA TRS-80 USER'S GROUP, PO BOX 02500, PORTLAND, OR 97202
PORTLAND ATARI CLUB, P.O. BOX 1692, BEAVERTON, OR 97005
PORTLAND COMPUTER SOCIETY, PO BOX 5494, PORTLAND, OR 97208
PORTLAND IBM PERSONAL COMPUTER CLUB, 12260 SW 124TH AVE., TIGARD, OR 97223
PORTLAND IBM PERSONAL COMPUTER CLUB, PO BOX 2068, BEAVERTON, OR 97075
THE MICRO-80 GROUP TRS-80 USERS SOCIETY, C/O BOB WALTERS, PO BOX 1472, EUGENE, OR 97440
WILLAMETTE VALLEY COLOR COMPUTER USERS, C/O BRIAN JAMES, 1850 BAILEY HILL RD., EUGENE, OR 97405

PENNSYLVANIA

ABACUS, 4209 LEVICK STREET, PHILADELPHIA, PA 19135
AIRPORT AREA COMPUTER CLUB, PO BOX 710, CORAPOLIS, PA 15108
APPLE USERS GROUP, NAVAL AIR DEVELOPMENT CTR. CODE 3013 MIKE MOCCENTR, WARMINSTER, PA 18974
ATARI COMPUTER USERS OF TEMPLE UNIV., C/O GLENN SNEELBECKER, 8505 PATTON RD., WYNDMOOR, PA 19118
BASIC COMPUTER CLUB, 1433 13TH AVENUE, ALTOONA, PA 16601, 814-942-9565
BRANDYKUG (Kaypro), 492 DEAN DRIVE, KENNETT SQUARE, PA 19348, (215) 444-5440
CAPATUG, CAPITOL AREA TRS-80 USERS GROUP, 340 LEWISBERRY RD., NEW CUMBERLAND, PA 17070, MAX WORTHINGTON
CAPITOL AREA USERS GROUP, PO BOX 637, FEDERAL SQUARE ST., HARRISBURG, PA 17108
CENTRAL PA. 99/4A USERS GROUP, THE POINT, I-83 AND UNION STREET DEPOSIT, HARRISBURG, PA 17111
CENTRAL PA EPSON USERS' GROUP, 430 W. CHOCOLATE AVENUE, HERSEY, PA 17033
CENTRE CO COMPUTER CLUB, WILLARD BLDG, UNIV PK., PA 16802
DELAWARE VALLEY COMPUTER SOCIETY, PO BOX 651, LEVITTOWN, PA 19058
ERIE APPLE CRUNCHERS, PO BOX 1575, ERIE, PA 16507
HARRISBURG PC USERS GROUP, 1195 FAIRMONT DR., HARRISBURG, PA 17112, 717-652-9097
INTERNATIONAL P.C. OWNER, INC., PO BOX 10426, PITTSBURGH, PA 15234
LEHIGH VALLEY HEATH USERS GROUP, 1425 N. BROAD ST., ALLENTOWN, PA 18104
LEHIGH 99 COMPUTER GROUP, PO BOX 4837, 1501 LEHIGH ST., ALLENTOWN, PA 18103
LVCC, PO BOX 2952, LEHIGH VALLEY, PA 18001-2952
MONROEVILLE APPLE USER GROUP, 579 CARNIVAL DR., PITTSBURGH, PA 15239
NACUG, C/O MARK KRAUSE, BOX 665, SPRING HOUSE, PA 19446
THE NATIONAL EPSON QX-10 USERS GROUP, C/O RICHARD SHOEMAKER, BOX 1076, Lemont, PA 16851
NITTANY USERS OF TEXAS INSTRUMENTS, 625 BERKSHIRE DRIVE, STATE COLLEGE, PA 16803
NORTH AMERICAN COMPUTER SOCIETY APPLE USERS GROUP, PO BOX 2129, WILKES-BARRE, PA 18700, C/O FRANCIS GEORGE
NORTH AMERICAN COMPUTER SOCIETY, ATARI USERS GROUP, PO BOX 2129, WILKES-BARRE, PA 18700, C/O FRANCIS GEORGE
P.L.U.G., C/O SCOTT HIGGS, 316 LOCUST AVE., ARDMORE, PA 19003
PACS, 1613 LINCOLN AVE., PROSPECT PARK, PA 19076, (215) 583-0612
PENN-JERSEY COLOR COMPUTER CLUB, PO BOX 2742, LEHIGH VALLEY, PA 18001
PHILADELPHIA AREA COMPUTER SOCIETY, LASALLE COLLEGE, BOX 312, PHILA., PA 19141
PHILADELPHIA AREA SANYO USERS GROUP, C/O J. SCOTT HIGGS, 316 LOCUST AVENUE, ARDMORE, PA 19003
PHILADELPHIA AREA TI-99/4A USERS GROUP, P.O. BOX 18486, PHILADELPHIA, PA 19120
PHILADELPHIA REGIONAL OSBORNE GROUP, PHROG, BOX 340, LAMPLIGHTER PLAZA, KULPSVILLE, PA 19443, C/O JOE GERVAISE
PITTSBURGH AREA COMPUTER CLUB, 400 SMITHFIELD ST., PITTSBURGH, PA 15222
PITTSBURGH ATARI, P.O. BOX 13435, PITTSBURGH, PA 15234

PITTSBURGH ATARI COMPUTER ENTHUSIASTS, 111 MONAHAM STREET, ALIQUIPPA, PA 15051
SANYO OF SOUTHWESTERN PENNSYLVANIA USERS' GROUP, 29 WEST MALDEN DRIVE, COAL CENTER, PA 15423
S.P.A.C.E. ATARI USER GROUP, P.O. BOX 11446, HARRISBURG, PA 17108-1446
SPACE, C/O DENSLAW, 14 PHEASANT CT., MECH. PA 17055
T.I. 99/4A, PITTSBURGH USER'S GROUP, BOX 18124, PITTSBURGH, PA 15236
SUSQUEHANNA VALLEY USERS GROUP, ATARI, COMMODORE, & TI-99/4A, C/O RAY KROHN, PRESIDENT, P.O. 5 BOX 145, DANVILLE, PA 17821
THE YORK AREA 99/ERS USERS GROUP, C/O ED GEISLER, 4385 BRAIRWOOD COURT, YORK, PA 17404
COCO USERS OF PHILADELPHIA, P.O. BOX 14330, PHILADELPHIA, PA 19115
TI-99/4A PITTSBURGH USERS GROUP, BOX 18124, PITTSBURGH, PA 15236
TRS-80 USERS GROUP OF DELAWARE, 1109 MADISON AVE., PROSPECT PART, PA 19075
TUG-DC, C/O GARY DITLLO, 1109 MADISON AVE., PROSPECT PARK, PA 19076
VALLEY ATARI COMPUTER CLUB, RD 2 COLEMAN DR., BEAVER, PA 15009
VALLEY FORGE TRS-80 USERS GROUP, 1000 VALLEY FORGE CIRCLE, KING OF PRUSSIA, PA 19406
WYOMING VALLEY COMPUTER CLUB, 302 WYOMING AVE., KINGSTON, PA 18704

RHODE ISLAND

THE COMPUTER CLUB, 49 DESANO DR., NARRAGANSETT, RI 02882
RHODE ISLAND COMPUTER HOBBYISTS, PO BOX 599, BRISTOL, RI 02809
THE RHODY APPLE GROUP, P.O. BOX 4726, RUMFORD, RI 02916
NORTH EASTERN 99ERS, 76 HERSCHER STREET, PROVIDENCE, RI 02909

SOUTH CAROLINA

B.I.B.S., C/O TAINIE GILLIAM, SPO 786, CHARLESTON, SC 29424 (803) 792-5151
CHARLESTON COMPUTER SOCIETY, PO BOX 5264, N. CHARLESTON, SC 29406
COMMODORE UPSTATE USERS, P.O. BOX 785, EASLEY, SC 29641 (803) 859-5435
COMMODORE USERS SOCIETY OF GREENVILLE, C/O HORIZON RECORDS-HOME COMPUTERS, 347 S. PLEASANTBURG DR., GREENVILLE, SC 29607
GREENVILLE APPLE USER GROUP, PO BOX 5131, GREENVILLE, SC 29106
GREENVILLE AREA HOME COMPUTER CLUB, C/O CHARLES E. GARDNER, 317 ELAINE AVE., TAYLORS, SC 29687 (803) 244-3243
LORDS OF BASIC USERS GROUP, C/O ROB WHISONANT, PO BOX 459, LANDSON, SC 29456
MIDLANDS 80 COMPUTER CLUB, PO BOX 7594, COLUMBIA, SC 29202
NONAME APPLE CLUB, C/O JAMES SUMNER, CITADEL STATION, BOX 13, CHARLESTON, SC 29409-0901
PIEDMONT 99ERS USERS GROUP, PO BOX 5921, GREENVILLE, S.C. 29606
THE COMPUTERNIKS, C/O USC CC BOOK STORE, PO BOX 1954, CONWAY, SC 29526
SPARCUG, SPARTANBURG COMMODORE USERS GROUP, P.O. BOX 319, SPARTANBURG, SC 29304

SOUTH DAKOTA

SIOUX FALLS AREA HUG, C/O LORIN DOBSON, 2001 S. SPRING AVE., SIOUX FALLS, SD 57105
SIOUXLAND 99ERS UG, 2310 S. COVELL, SIOUX FALLS, SD 57105

TENNESSEE

APPLE SOFTWARE TURNOVER, PO BOX 716, FAYETTEVILLE, TN 37334
ATHENS 99/4A COMPUTER USERS GROUP, PO BOX 309, ATHENS, TN 37303
C.A.S.E. (COMMODORE ASSOCIATION SOUTH EAST), P.O. BOX 110386, NASHVILLE, TN 37211
CHATTANOOGA USERS GROUP (CHUG), PO BOX 136, HIXSON, N. 37343, C/O EARL CONWAY
EAST TENNESSEE CENTRAL HEATH USERS GROUP, 7608 LUSCOMBE, KNOXVILLE, TN 37919, C/O WALTER SCOTT, 615-690-3864
ET 64 USERS GROUP, PO BOX 495, KNOXVILLE, TN 37901
HOLSTON VALLEY USERS GROUP, 310 WILLOW ST., MT. CARMEL, TN 37642
K-TOWN 99/4A USERS GROUP, 3506 GARDEN DRIVE, KNOXVILLE, TN 37918, (615) 687-8869
MEMPHIS AREA IBM-PC USERS GROUP, PO BOX 241756, MEMPHIS, TN 38124, C/O PETER VERMILY
MEMPHIS COMMODORE USERS CLUB, P.O. BOX 38095, BARTLETT, TN 38134-0095
MID-SOUTH 99 USERS GROUP, P.O. BOX 38522, GERMAN TOWN, TN 38138
MUSIC CITY 99ER USERS GROUP, PO BOX 4072, MADISON, TN 37116
NASHVILLE COMMODORE USERS GROUP, PO BOX 121282, NASHVILLE, TN 37212, (615) 834-2073
TRI-CITIES COMPUTER CLUB, P.O. BOX 4506 CRS, JOHNSON CITY, TN 37602-4506
TUG (TIMEX USERS GROUP), 1501 - B COMPTON AVE., NASHVILLE, TN 37212

TEXAS

AACE ATR-8000 SPECIAL INTEREST GROUP, 9401 MOUNTAIN QUAIL ROAD, AUSTIN, TX 78758
ABILENE TIMEX SINCLAIR UG C/O CHRIS NYSTROM, 609 EN 18th, ABILENE, TX 79601
ALAMO KAYPRO USERS' GROUP, P.O. BOX 47728, SAN ANTONIO, TX 78265 512-496-6300
ALAMO PC ORGANIZATION, PO BOX 16433, SAN ANTONIO, TX 78216
AMATEUR RADIO CLUB, PO BOX 4391, WICHITA FALLS, TX 76308
APPLE PI, C/O CAEY FRANCEL, 2105 ANDREWS HWY., ODESSA, TX 79761
AUSTIN ATARI COMPUTER ENTHUSIASTS, 8207 BRIARWOOD LANE, AUSTIN, TX 78758

AUSTIN TRS-80 USERS GROUP, PO BOX 43422, AUSTIN, TX 78745
BASIC SOCIETY-IBM USERS GROUP, BOX 815099, DALLAS, TX 75281
BIG COUNTRY HOME COMPUTER USER GROUP, PO BOX 2114, ABILENE, TEXAS 79604
CENTRAL TX COMPUTER, 14 LAVACA, AUSTIN, TX 78701
CENTRAL TEXAS COMPUTER ASSOCIATION, PO BOX 4391, WICHITA FALLS, TX 76308
CENTRAL TEXAS 99/4A USERS GROUP, PO BOX 3026, AUSTIN, TX 78764
CLEARWATER OSBORNE GROUP, C/O MAYNARD HUNTLEY, PO BOX 57613, WEBSTER, TX 77598
CLUB 1802, PO BOX 985, DICKINSON, TX 77539
COMMODORE (HOUSTON) USERS GROUP, C/O JOHN WALKER, EDITOR OF NEWSLETTER, 8738 WILDFOREST, HOUSTON, TX 77088
COMP HOBBYIST GROUP, UTA, ARLINGTON, TX 76109
COMPUGUILD TRS-80 GROUP, 2211 S. LIPSCOMB, AMARILLO, TX 79109
CORPUS CHRISTI COMPUTER CLUB, 801 ORLEANS, CORPUS CHRISTI, TX 78418
CORPUS CHRISTI TRS-80 USERS GROUP, 6214 HIDDEN COVE, CIRPUS CHRISTI, TX 78412
CORPUS CHHRTSI 99ERS USERS GROUP, C/O LANCE PARR, 534 VARY, CORPUS CHRISTI, TX 78404
DIFW IBM USERS, 1913 DALWORTH ST., GRAND PRAIRIE, TX 75050
DAL-ACE, 916 E. BERKELEY, RICHARDSON, TX 75081
DALLAS-AGGIE COMMODORE 64 CLUB, 2914 POPLAR TRAIL, GARLAND, TX 75042, (214) 494-0839
DALLAS APPLE CORPS, PO BOX 5537, RICHARDSON, TX 75080
DALLAS COUNTY COMMODORE CLUB, 1913 DALWORTH STREET, GRAND PRAIRIE, TX 75050
DALLAS/FORT WORTH METROPLEX 68XX USER'S GROUP, P.O. BOX 6809, DENTON, TX 76203
DALLAS TI HOME COMPUTER GROUP, C/O LOUIS GUION, 11923 QUINCY LANE, DALLAS, TX 75230
DALTBUG, TRS-80 USERS GROUP, INC., PO BOX 400472, DALLAS, TX 75240
DYNASTY SMART-ALEC USER'S GROUP, (S.M.U.G.), C/O RICHARD ZERWICK, 15033 KIMBERLY LANE, HOUSTON, TX 77079, SOURCE ID #TCW003
EAST TEXAS EAGLE USERS, 1809 BELL, LONGVIEW, TX 75602
EL PASO COMP GRP, ELECTRONICS BLDG, EL PASO, TX 79901
FORT WORTH APPLE USERS GROUP, BOX 13903, ARLINGTON, TX 76013 C/O GARTH CLOSE
GROUP BUY USERS, PO BOX 830119, RICHARDSON, TX 75083
GROUP 80, DAVIS HALL, ARLINGTON, TX 76109
HOT APPLE PIE, PO BOX 517, HEITZ, TX 76643
HUGTBBS TI99/4A 2401 CLEARMONT, ST. JOHN'S SCHOOL, HOUSTON, TX
INTERNATIONAL COLOR COMPUTER CLUB, 2101 EAST MAIN STREET, HENDERSON, TX 75652
KAYPRO CLUB OF AUSTIN, PO BOX 50213, AUSTIN, TX 78763
LUBBOCK IBM PC SIG, PO BOX 98117, LUBBOCK, TX 79499
MCTRUG, C/O ROBBIE G. YODER, 5413 Rita Kay Lane, Ft. Worth, TX 76119
METROPLEX CPIM INTEREST GROUP, P.O. BOX 863909, PLANO, TX 75086
MIDLAND MICROCOMPUTER USERS, PO BOX 50246, MIDLAND, TX 79710, C/O LONNIE YEE
METROPLEX CPIM INTEREST GROUP, C/O PO BOX 863909, PLANO, TX 75086
THE NASACOM 64 COMMODORE CLUB, JOHNSON MANN ED SPACE CENTER, MEDIA BUILDING II, HOUSTON, TX
PCUG (PERSONAL COMPUTER USERS GROUP), 1134 LINDA LEE, SAN ANGELO, TX 76905
PERMIAN BASIN AMATEUR COMPUTER GROUP, C/O JOHN RABENALDT, ECTOR COUNTY SCHOOL DISTRICT, BOX 3912, ODESSA, TX 79760
PERMAIN PC COMPUTER USERS GROUP, ODESSA COLLEGE, EDP DEPARTMENT CHAIRMAN, ODESSA, TX 79760
RANDOLPH AREA ATARI USERS' GROUP, PO BOX 2611, UNIVERSAL CITY, TX 78148
RIVER CITY APPLE CORPS., PO BOX 13449, AUSTIN, TX 78711
SAN ANGELO APPLE USERS GROUP S.A.A.G., 1322 GREGORY DR., SAN ANGELO, TX 76905
SANYO GROUP OF AMARILLO, C/O LES SPARKS, W.T. BOX 2052, CANYON, TX 79016
SUN CITY 99/4A COMPUTER CLUB, PO BOX 6966, EL PASO, TX 79906
SUN METRO ATARI USERS GROUP (SMAUG), #516, 9455 VISCONTE BLVD., EL PASO, TX 79925
TAMU UC CLUB, POB M 9, AGGIELAND, STATION, TX 77664
TEXAS SANYO USERS GROUP, C/O 21ST CENTURY CONCEPTS, P.O. BOX 741576, HOUSTON, TX 77274-1576
THE NATIONAL ASSOCIATION OF TRS II USERS, PO BOX 14091, AUSTIN, TX 78761

THE TRIANGLE 99ERS, 5435 FANNET ROAD #15, BEAUMONT, TX 77705, C/O RAY DAUPHINIAS
TI PROFESSIONAL COMPUTER USERS GROUP, PO BOX 821094, DALLAS, TX 75382
TRS-80 USERS GROUP, C/O ALLAN EMERT, BOX 3912, ODESSA, TX 79760
TIMEX/SINCLAIR USERS GROUP, C/O JEO JENKINS, 3100 MOCKINGBIRD, AMARILLO, TX 79109
UTD RICHARDSON GRP, GREEN CTR RM 2 530, RICHARDSON, TX 45080
WICAT USER'S GROUP, PO BOX 7594, THE WOODLANDS, TX 77380
WICHITA VALLEY TRS-80 USERS GROUP, (INCLUDES MODEL I, MODEL 3 AND COLOR COMPUTER), PO BOX 4391, WICHITA FALLS, TX 76308, J. WESLEY B. TAYLOR, PRES.

UTAH

APPLE SLICE, PO BOX 11246, SALT LAKE CITY, UT 84147
ATARI COMPUTER ENTHUSIASTS OF UTAH, 5522 SARAH JANE DR., KEARNS, UT 84118
ODGEN TI-99 USERS GROUP, C/O MR. JAMES BUCK, 1005 S. 1000 WEST, CLEARFIELD, UT 84015 (801) 773-2552
UTAH COMPUTER ASSOCIATION, 378 E. 9800 SO. SANDY, UT 84070

VERMONT

GREEN MOUNTAIN APPLE CLUB, C/O DON VANSYCKEL, RD 3, BOX 490, MIDDLEBURY, VT 05753
VERMONT FIG, DON VANSYCKEL, RD 3, BOX 490, MIDDLEBURY, VT 05753
CHAMPLAIN-VALLEY-COMMODORE-USERS-GROUP (CVCG) C/O STEVE LIPPETT, BURLINGTON, VT

VIRGINIA

THE ADAM WASHINGTON DC METRO USER GROUP, 6510 O'CHESTERBROOK, MCLEAN, VA 22101 (703) 827-9054
AMATEUR HAM RADIO COMPUTER TELECOMMUNICATORS GROUP, BOX 728, FAIRFAX, VA 22110
AMERICAN APPLE SOFTWARE USER'S GROUP, BOX 3051, OAKTON, VA 22124
AMRAD, PO DRAWER 6148, MCLEAN, VA 22106
ARLINGTON VICTIMS (2064), 4501 ARLINGTON BLVD., ARLINGTON, VA 22204
BATTLEFIELD USERS GROUP, PO BOX 5257, FREDERICKSBURG, VA 22403
CAPITOL AREA COMMODORE ENTHUSIASTS, 2312 TANGLE VALE, VIENNA, VA 22180
CAPITOL AREA COMMODORE USERS, 2054 EAKINS COUT, RESTON, VA 22091
CPRO USERS GROUP, NATIONWIDE DIVISION, PO BOX 1474, WOODBRIDGE, VA 22193
DIGIT, C/O DAVE HOLMES, WOLFTRAP ROAD, GRAFTON, VA 23962
FEDERATION OF COMMODORE USERS SOCIETY (FOCUS), 4301 COLUMBIA PIKE #410, ARLINGTON, VA 22204
FRANCONIA COMMODORE USERS GROUP, 6209 ROSE HILL DRIVE, ALEXANDRIA, VA 22310
FREDERICKSBURG COMMODORE COMPUTER CLUB, 313 WILLIAMS STREET FREDERICKSBURG, VA 22402
GREATER RICHMOND ATARI SUPPORT PROGRAM, 8219 TARKINGTON DRIVE, RICHMOND, VA 23227
MICRO COMPUTER INVESTORS ASSOCIATION, 902 ANDERSON DRIVE, FREDERICKSBURG, VA 22405
NORTHSTAR USERS GROUP OF METROPOLITAN WASHINGTON, D.C. C/O WALTER WHITE, 6048 N 9th Street, Arlington, VA 22205
PENTAF (PENTAGON), 9912 COLONY ROAD, FAIRFAX, VA 22030
PENTRUG, C/O DUANE SAYLOR, 854 EADS COURT, NEWPORT NEWS, VA 23602
PIONEER COMPUTER USER'S GROUP, PO BOX 604, LEXINGTON, VA 24450
RICHMOND FORTH GROUP, C/O DON FULL, 8110 BETHIA ROAD, CHESTERFIELD, VA 23832, 804 739-3623
RICHMOND HEATH USERS GROUP, C/O CARLOS CHAFIN, 4302 SMITHDEAL AVE., RICHMOND, VA 23225
RICHMOND TRS-80 USERS GROUP, 4115 HOPKINS RD., RICHMOND, VA 23234
SOC FOR APPLIED, 50 CULPEPPER, WARRENTON, VA 22186
TANDY COMPUTER USERS GROUP, PO BOX 2826, FAIRFAX, VA 22031
THE APPLE RESOURCE TEAM, 400 N. MEADOW STREET, RICHMOND, VA 23220
THE EPSON GAZETTE, 5140 APPLETREE DR., ROANOKE, VA 24019
THE LYNCH BURB MICRO COLOR USERS GROUP, 4717 HERITAGE DR., LYNCHBURG, VA 24503, C/O CURTIS FINCH
NORTHERN VIRGINIA ATARI, C/O C. SANDLER, 7213 IDLEWOOD CT., FALLS CHURCH, VA 22043
TIDEWATER ATARI USERS' GROUP, C/O BUCK MADDREY, 5245 SHENSTONE CIRCLE, VIRGINIA BEACH, VA 23455
TIDEWATER APPLE WORMS CLUB, 3025 VERDOME TERRACE, NORFOLK, VA 23509
TIDEWATER COSCIG, C/O BRUCE NICHOLS, 107 PASTURE ROAD, POQUOSON, VA 23662
TIDEWATER COMMODORE USERS GROUP, 4917 WESTGROVE RD., VIRGINIA BEACH, VA 23455, C/O FRED MONSON
TIDEWATER 99/4A USERS GROUP INC., 584 WATER OAKS RD., VA BEACH, VA 23452
TIDEWATER TRS-80 USER GROUP, PO BOX 10281, NORFOLK, VA 23513
WASHINGTON AREA C-64 (BURKE), PO BOX 93, MT. VERNON, VA 22121
WASHINGTON AREA C-64 USERS GROUP, 7426 ELDORADO ST., MCLEAN, VA 22201
WASHINGTON DC AREA 99/4A USERS GROUP, PO BOX 267, LEESBURG, VA 22075
WASHINGTON DC AREA TI HOME COMPUTER USERS GROUP, PO BOX 267, LEESBURG, VA 22075
WAYNESBORO COMPUTER CLUB, BOX 573, WAYNESBORO, VA 22980
TIDEWATER OSBORNE GROUP (TOG), P.O. BOX 68068, VIRGINIA BEACH, VA 23455
THE ADVENTURER'S GUILD, A DIVISION OF F.C.C. USERS' GROUP, C/O CHRIS COX, PRESIDENT, CARL ALEXANDER BOXLEY, SECRETARY, 313 WILLIAM STREET, FREDERICKSBURG, VA 22405

WASHINGTON

APPLE, 6708 39TH AVE. SW, SEATTLE, WA 98136
APPLE COBBLETS, ATT: ROD TAYLOR, NORTH THURSTON HIGH SCHOOL, 600 SLEATER KINNEY NE., OLYMPIA, WA 98506, (206) 456-7682
MOUNTAIN COMMODORE GROUP, C/O JIM GODFREY, 550 S. 2ND AVENUE, WALLA WALLA, WA 99362-3149, 509-529-4663
BOING COMPUTER SOCIETY SANYO GROUP, C/O KEN SKINNER, 6407 129th PLACE SE, BELLEVUE, WA 98006
CPM USERS GROUP, 803 EUCLID WAY, CENTRALIA, WA 98531
FORT LEWIS COMMODORE COMPUTER CLUB, QUARTERS 1821-A, FORT LEWIS, WA 98433
G.R.A.P.E., PO BOX 576, KEYPORT, WA 98345
INTERNATIONAL COMPUTER SOCIETY (ICS), C-2665 BUSBY ROAD, OAK HARBOR, WA 98277
INTERNATIONAL SOFTWARE SOCIETY, 2665 1250TH EAST, WHIPKEY ISLAND, WA 98277
MEDICAL COMPUTER USERS GROUP, MADIGAN ARMY MEDICAL CENTER, TACOMA, WA 98431
THE NATIONAL USERS GROUP, MICHAEL RUSSELL, P.O. BOX 2084CS, PULLMAN, WA 99163
N.O.V.A., 421 W. 69th ST., VANCOUVER, WA 98665
NORTH STAR COMPUTER SOCIETY, PO BOX 311, SEATTLE, WA 98111
NORTHWEST COMPUTER SOC., POB 4193, SEATTLE, WA 98104
OLYMPIA COMPUTER SOCIETY, 8540 MILL BIGHT RD. NE, OLYMPIA, WA 98506, ATTN: CHARLEY S. HEATH
OLYMPIA KAYPRO U.G., 6925 4TH WAY S.E., OLYMPIA, WA 98503
PACIFIC NORTHWEST HEATH USERS GROUP (P.N.H.U.G.), C/O NATHAN A. HALL, PO BOX 993, BELLEVUE, WA 98005
PUGET SOUND TRS-80 USERS GROUP, C/O BURIEN LIBRARY, 14700 6TH AVENUE S.W., SEATTLE, WA 98166
PUGET SOUND 99ER'S, TEXAS INSTRUMENTS USERS GROUP, PO BOX 6073, LYNNWOOD, WA 98036
"R" ATARI GROUP, 1691 BEECH LANE, OAK HARBOR, WA 98277
SANYO NATIONAL USER'S GROUP, C/O MICHAEL RUSSELL, P.O. BOX 2084 CS, PULLMAN, WA 99165 (509) 878-1714
SEATTLE AREA TIMEX U.G., APT. 350, 3501 8th SE, MERCER ISLAND, WA 98040, (206) 236-0470
SPOKANE MICROCOMPUTER USERS GROUP, C/O TOM

BROWN, P.O. BOX 1753, SPOKANE, WA 99210 (509) 482-7978
THE CONSTANT SOCIETY, PO BOX 45513, SEATTLE, WA 98105
WENATCHEE VALLEY APPLE COMPUTER CLUB, DAVE HOFFMAN, 535 HIGHLAND DRIVE, WENATCHEE, WA 98801
WESTERN WASHINGTON COMPUTER CLUB, TI USERS GROUP 605 168TH ST. E. #20, SPANAWAY, WA 98387
WHIDBEY ISLAND COMPUTER SOCIETY, P.O. BOX 1365, OAK HARBOR, WA 98277
Z-80 UNDERGROUND, 152 HARYU ROAD, LONGVIEW, WA 98632
SPOKANE COMMODORE USERS GROUP, P.O. BOX 13201, SPOKANE, WA 99213-3201
TI-99 USERS GROUP, BELLEVUE, WA 98006

WEST VIRGINIA

CAPTAIN COMMODORE, C/O JIM C. POLING, JR., POTOMAC STATE COLLEGE, BOX 303, KEYSER, WV 26726
CLARKSBURG AREA COMPUTER CLUB, 107 BOYD STREET, CLARKSBURG, WV 26301
ECUG, P.O. BOX 2381, ELKINS, WV 26241
MICRO SYSTEMS U.G., 14 EAST LINCOLN STREET, BUCKHANNON, WV 26201
MOUNTAIN STATE COLOR COMPUTER USERS GROUP, PO BOX 1084, MORGANTOWN, WV 26507
PERSONAL COMPUTER CLUB, 2107 CAPITOL DRIVE, PARKERSBURG, WV 26101
WEIRTON PERSONAL COMPUTER ASSOCIATION C/O FRANK SALERNO, P.O. BOX 2601, WEIRTON, WV 26062

WISCONSIN

ADAM & EVE APPLE USERS' GROUP, P.O. BOX 5344, MADISON, WI 53705
COMAL USERS GROUP, 5501 GROVELAND TERRACE, MADISON, WI 53716
DURANT COMPUTER CLUB, 901 S. 12TH STREET, WATER TOWN, WI 53094
EAU CLAIRE ATARI VALLEY CHIPPEWA ATARI USERS GROUP, C/O MORT SIPRESS, 1735 COOLIDGE COURT, EAU CLAIRE, WI 54701
FOND DU LAC COMPUTER CLUB (TI), C/O BRUCE MURRAY, PO BOX 1031, FOND DU LAC, WI 54935
FOX CITIES USERS GROUP (TI), ATTN: DAN KEATING, PO BOX 2277, APPLETON, WI 54913
FRANKLINAPPLE INFORMATION X-CHANGE (FIX) C/O G PILAK, 2832 S. HERMAN STREET, MILWAUKEE, WI 53207
G&L ELECTRONICS TI USERS GROUP, C/O GENE OLIG, ROUTE 3 FOND DU LAC, WI 54935
GREEN BAY 99ERS, C/O JOHN VANDERMUS, 124 S. IRWIN AVE., GREEN BAY, WI 54301
MADAREA 99ERS, C/O MARCIA SCHMIDT, 2118 HIGH RIDGE TRAIL, NO. 302, MADISON, WI 53713
MADISON COMPUTER SOCIETY, C/O J.SBRENK, 3102 ASHFORD LN., MADISON, WI 53713
MENOMIN APPLE USERS GROUP, ALLEN KELSEY, SOFT WARE LIBRARIAN, 802 12TH AVE. E., MENOMONIE 54751
MIDWEST INTER

Users Groups

NEW BRUNSWICK

MONCTON ATARI COMPUTER USERS, C/O MURRAY STEEVES, 39 DAWN CRES., MONCTON, N.B., CANADA E1C 1K9
 TI USERS GROUP OF SOUTHEASTERN NEW BRUNSWICK
 139 DUFFERIN STREET, MONCTON, NEW BRUNSWICK CANADA E1C 1Z2

ONTARIO

APPLE USERS GROUP OF MUI C/O BERT WILLIAMS, 47 TUCKET ST., SAULT STE. MARIE, ONTARIO, P6A 4G8 (SEE ALSO SAULT STE. MARIE)
 CHANNEL 99'ER USERS GROUP WENTWORTH SUPPLIES P.O. BOX 1005, STATION 'A', HAMILTON, ONTARIO, L8A 3R1
 I.E.E.E., STUDENT BRANCH, COMPUTER CHAPTER, C/O E.E. DEPARTMENT, UNIVERSITY OF WATERLOO WATERLOO, ONTARIO, N2L 3G1
 LOGIC P.O. BOX 696, POSTAL STATION 'B', WILLOWDALE ONTARIO, M2K 2P9, 416-881-8120
 NINE T NINE USERS GROUP 55 CORDELLA AVENUE TORONTO, ONTARIO, M6N 2J7
 TILT C/O G.H. FORDER, 93 SCOTT STREET, TRENTON, ONTARIO, K8V 3B5, 613-392-7935
 TORONTO 'OHIO SCIENTIFIC' IDEAS EXCHANGE, P.O. BOX 29, STREETSVILLE, ONTARIO, L5M 2B7
 TORONTO TIMEX-SINCLAIR USERS CLUB, P.O. BOX 7274 STN. A, TORONTO, ONTARIO M5W 1X9
 TPUG (TORONTO PET USERS GROUP) 3 CLARET COURT ISLINGTON, ONTARIO, M9A 4S6

QUEBEC

CLUB TIPS, 11680 ST-REAL, MONTREAL, QUEBEC, CANADA H3M 2Y4
 MICRO ORDINATEUR MILLE-ILES 673 CLAIRETTE FABREVILLE, LAVAL, QUEBEC, H7P 2Y3
 MONTREAL TRS-80 USERS GROUP 1176 PHILLIPS PLACE SUITE 021, MONTREAL, QUEBEC, H3B 3C8

QUEBEC ASSOCIATION DES UTILISATEURS D'OR DINATEURS DU QUEBEC C.P. 685, SUCC. 'H', MONTREAL QUEBEC, H3G 2M6
 QUEBEC/CANADA ASSOCIATION DES UTILISATEURS D'OR DINATEURS DU QUEBEC C.P. 122, SUCC. 'F', MONTREAL QUEBEC, H3J 2K8
 SHER-TI, 422, 7th AVENUE SOUTH, SHERBROOKE, QUEBEC CANADA J1G 2N2

SASKATOON

SASKATOON TEXAS INSTRUMENTS COMPUTER CLUB 407-2010 22nd STREET W., SASKATOON, SASK. (306) 978-0182

GERMANY

PATCH TI 99ER USER GROUP, P.O. BOX 1068, APO NY NY 09128, LOCATED IN STUTTGART, GERMANY
 CPIM OSBORNE KAYPRO EXCHANGE IN USERS GROUP (COKE/UG) C/O LAWRENCE C. YARNALL, JR., HINTERGASSI 4, 6719 TIEFENTHAL/W. GERMANY
 SENECA/SOFT, C/O DIETER ECKHARDT, RUCKERSTREET 1, 4100 DUISBURG 14, W. GERMANY

MEXICO

MICROCOMPUTER CLUB, C/O ALFREDO BOZALI, FTE. DI QUIJOTE #5, MEXICO, D.F.

PUERTO RICO

COMMODORE USER'S GROUP OF PUERTO RICO, CALLI 16 35-24 VILLA CAROLINA, CAROLINA, PR 00631 (809)762-2422
 THE VIC-20 USER'S GROUP, C/O ROBERTO MORALES, JR. 655 HERNANDEZ ST., MIRAMAR, PUERTO RICO 00907

TRINIDAD

TRINIDAD ASSOCIATION OF COMMODORE OWNERS (TACO), C/O BRENT MUNDY, 118 MEADOW DR., ORANGE GROVE, TACARIGUA, TRINIDAD

Coming Events

If you know of or have a trade show, swap meet or club meeting connected with the computer field, we'll run an announcement in the **COMING EVENTS** section FREE of charge.

SEPTEMBER 24-25

DATACON '85, St. Louis, MO. The premier high-tech show of the year will be held at Cervantes Convention Center featuring hardware, software, peripherals, telecommunications and much more. For exhibitor info contact Class Productions, Inc. 4207 N. Clinton St., Ft. Wayne, IN, 314-241-4885. For topic subject info call Robert Rafferty, 314-621-7777.

SEPTEMBER 25-26

THE DAYTON BUSINESS, COMPUTER AND OFFICE PRODUCTS SHOW, Dayton, OH. The premier high-tech show of the year takes place at the Dayton Convention Center featuring hardware, software, peripherals, telecommunications and much more. For details contact Class Productions, Inc. 4207 N. Clinton St., Ft. Wayne, IN, 219-482-3448.

SEPTEMBER 26-29

THE 8th NORTHEAST COMPUTER FAIRE & UNIX SYSTEMS EXPO, the longest running and largest computer user show in the East. For more information contact Computer Faire, Inc. 617-965-8350.

SEPTEMBER 27-29

THE EIGHTH SOUTH FLORIDA COMPUTER SHOWCASE EXPO, an exposition for small computer and business equipment users. For more information contact The Interface Group, Inc., 300 First Avenue, Needham, MA 02194 (617) 449-6600

SEPTEMBER 28 & 29

AMACON 85, the Greater New Orleans HAM & COMPUTER-FEST will be held at Landmark Motor Hotel in Metairie, La. For more information contact New Orleans Hamfest-Computerfest, P.O. Box 73665, Metairie, LA 70033

SEPTEMBER 28-29

GOLDEN GATE COMPUTER EXPO, Oakland Coliseum Exhibit Hall, Oakland, CA. For more information contact Golden Gate Expo (800) 421-5754

OCTOBER 1985

OCTOBER 5

PHILADELPHIA MICRO SHOW (#5), 10:00 AM - 4:00 PM, Adult \$4, Children \$2. G.W. Conference Center - Willow Grove, PA, Exit #27 Pennsylvania Turnpike. Over 175 tables from \$40.00. Call (201) 297-2526 for further information.

OCTOBER 5

9th ANNUAL MID-ATLANTIC VHF CONFERENCE will be held at the Warrington Motor Lodge - Route 611, Warrington, PA. For information contact HAMARAMA '85, PO Box 311, Southampton, PA 18966 or Lee A. Cohen - K3MXM (215)635-4942.

Santa's Helper
COMPUTER SHOPPER



at Special Holiday Rates (for yourself or a friend). See Center.

OCTOBER 6

14th PACK RAT HAMARAMA will be held at the Bucks County Drive-In Theatre on Route 611 in Warrington, PA. Admission to flea market is \$5 with selling spaces \$8.00 each. For further information contact P.O. Box 311, Southampton, PA 18966 or Lee A. Cohen - K3MXM - phone 215-635-4942.

OCTOBER 10-13

ATLANTA COMPUTER SHOWCASE EXPO, Atlanta Civic Center. For more information contact The Interface Group, Inc., 300 First Avenue, Needham, MA 02194 (617) 449-6600

OCTOBER 12

THE 1985 MIDWEST COMMODORE CONFERENCE/EXPO, Holiday Inn Convention Center, 72nd & Grover St., Omaha, NE. Registration fees: Members \$15.00, Non-Members \$20.00. For further information contact The Greater Omaha Commodore Users Group, PO Box 628, Bellevue, NE 68005-0628

OCTOBER 12-13

NYC PERSONAL COMPUTER SHOW (#6) 10:00 AM - 4:00 PM, Adult \$6, Children \$4. Madison Square Garden - New York, NY. 10 x 10 Booths - \$400.00. New York's oldest "Personal Computer Show" Call (201) 297-2526 for further information.

OCTOBER 15-16

THE COLUMBUS BUSINESS, COMPUTER AND OFFICE PRODUCTS SHOW, the premier high-tech show of the year will be held at the Ohio Center. It will feature hardware, software, peripherals, telecommunications and much more. For details call Class Productions Inc., 4207 N. Clinton St., Ft. Wayne, IN 614-224-7480.

OCTOBER 17-19

COMPUTER TECHNOLOGY AND PERSONS WITH DISABILITIES, California State University, Northridge University Student Building. For more information contact Dr. Harry J. Murphy, Coordinator, Office of Disabled Student Services, at 818-885-2578

OCTOBER 24-27

CHICAGO COMPUTER SHOWCASE EXPO, McCormick Place. For more information contact The Interface Group, Inc., 300 First Avenue, Needham, MA 02194 (617) 449-6600

OCTOBER 27

RED ROSE THIRD ANNUAL COMPUTERFEST, Lancaster, PA. For more information address inquiries to Computerfest Committee, PO Box 5029, Lancaster, PA 17601.

OCTOBER 28 & 29

FOURTH ANNUAL PACIFIC NORTHWEST COMPUTER GRAPHICS CONFERENCE, will be held at the Hult Center for the Performing Arts and the Eugene Conference Center/Hilton Hotel Complex in Eugene, Oregon. This two-day event will feature a multi-disciplinary view of leading edge computer graphics applications. For further information contact: Conference Manager, University of Oregon Continuation Center, Atrium Building Suite 333, 99 West 10th Ave., Eugene, Oregon 97401. (503) 686-3536, 1-800-524-2404 Oregon Toll Free, 1-800-228-6891 National Toll Free.

OCTOBER 28-30

DATA PROCESSING MANAGEMENT ASSOCIATION (DPMA) Internal Computer Conference and Business Exposition - DPMA Houston '85. For more information contact Doris Dodge, Conference and Meetings Manager, DPMA International Headquarters, 505 Busse Highway, Park Ridge, IL, 60068-3191, (312)-825-8124.

NOVEMBER 1985

NOVEMBER 1-3

TAMPA COMPUTER SHOWCASE EXPO, Curtis Hixon Hall. For more information contact The Interface Group, 300 First Avenue, Needham, MA 02194 (617) 449-6600

NOVEMBER 3-6

17th ANNUAL CONFERENCE & EXHIBITION, Information: The Force & Its Future, Shoreham Hotel, Washington, D.C. For more information contact Information Industry Association, 316 Pennsylvania Avenue, S.E., Suite 400, Washington, D.C. 20003, (202) 544-1969

NOVEMBER 9

COMPUTER EDUCATION IN TRANSITION, B.A.S.I.C.(s) AND BEYOND, held at Fordham University, Lincoln Center Campus. For more information contact ACE at 751 Bard Avenue, Staten Island, NY 10310

NOVEMBER 7-10

LOS ANGELES COMPUTER SHOWCASE EXPO, Los Angeles Convention Center. For more information contact The Interface Group, Inc., 300 First Avenue, Needham, MA 02194 (617) 449-6600

MARYLAND/VIRGINIA/DC MICRO SHOW (#2), 10:00 AM - 4:00 PM, Adult \$5, Children \$3. Sheraton Northeast - New Carrollton, MD, Exit #20B - I-95 Beltway. Over 200 tables available from \$25.00 each. Call (201) 297-2526 for further information.

NOVEMBER 10-13, 1985

THE NINTH ANNUAL SYMPOSIUM ON COMPUTER APPLICATIONS IN MEDICAL CARE will be held at the Baltimore Convention Center. It will offer a forum for professionals from both the health care and computers fields to come together, to listen to exchange ideas, to learn from each other and to leave with some new insight into solving problems in medical computing. For further information contact SCAMC, The George Washington University Medical Center, Office of Continuing Medical Education, 2300 K St., N.W., Washington, D.C. 20037.

NOVEMBER 13-15

THIRD INTERNATIONAL CONFERENCE ON THE FUTURE OF OPTICAL MEMORIES, VIDEO DISKS, AND COMPACT DISKS TO THE YEAR 2000 will be held at the Holiday Inn Union Square, San Francisco, CA. For further information, contact Judith P. Hanson, TOC Coordinator, Technology Opportunity Conference, P.O. Box 14817, San Francisco, CA, 94114, at 415-626-1133.

NOVEMBER 16

BAY AREA COMPUTER SWAP, Santa Clara County Fairgrounds, San Jose, CA. For more information contact Microshows, 1209 Donnelly Avenue, Suite 203, Burlingame, CA 94010 (415) 340-0104

NOVEMBER 20-24

COMDEX/FALL, the world's largest computer industry trade show will be held at six major Las Vegas facilities—Las Vegas Convention Center, the Convention Center's West Hall, the Hilton, Riviera, Caesar's Palace, and MGM Grand Hotels. For more information contact The Interface Group, 300 First Avenue, Needham, MA 02194 (617) 449-6600

NOVEMBER 23

SOUTH JERSEY MICRO SHOW (#3) 10:00 AM - 4:00 PM, Adult \$5, Children \$3. Halloran Plaza - Pennsauken, NJ. Route 130 South. Over 200 tables from \$25.00 each. Call (201) 297-2526 for further information.

NOVEMBER 23-24

COMPUTER & ELECTRONICS EXPO, P.C. Show, Yonkers Raceway Clubhouse, Yonkers, NY. For more information contact Morgenstein Enterprises, LTD. at 914-634-9663

DECEMBER

DECEMBER 2-6

TUTORIALS FOR PROFESSIONAL DEVELOPMENT, Boston MA. For more information contact Gerry Segal, 11 West 42nd Street, New York, NY 10036 (212) 869-7440

GROUP SAVINGS!

If you're a member of a group that uses microcomputers in school, the office or a user group, your group may be eligible for substantial subscription savings to the fastest growing computer magazine in the world today, **COMPUTER SHOPPER**! This international computer magazine offers the best in *price, product* and *information* available in the fast breaking world of microcomputers. Our readers have been known to say, "If you're not reading **COMPUTER SHOPPER** then you're paying too much!" To find out about our special group offer just dial 1-800-327-9926 ext. 85. Start your group savings now, call Today!

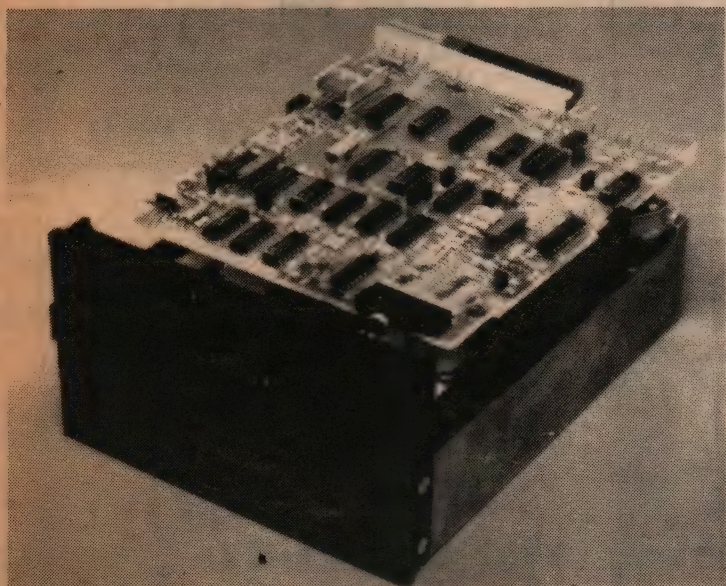
COMPUTER SHOPPER™

P.O. Box F
 Titusville, FL 32781

1-800-327-9926

IBM-PCTM USERS

Double Your Disk Drive Capacity



720K Formatted
DS/DD 80 Track

Compatible With All IBM Software (PC DOS 2.0 or Higher)
Allows You To Read IBM Format Diskettes
Requires (1) 40 Track DS/DD Drive
Package Includes Diskette With Device Driver And Installation Instructions

79.00 Factory New

**SHUGART
SA465**

Doubled Sided-Double Density
96 TPI — 720K
FACTORY NEW

\$80⁰⁰ ea.

**SHUGART
SA475**

Double Sided Double Density
96 TPI — 1.5 Meg.
Sold Out
AT COMPATIBLE
FACTORY NEW

\$90⁰⁰ ea.

California Residents Add 6% Tax. Add \$2.00 Shipping Per Item.
Cashier's Checks or Certified Checks Only.
Orders Will Be Shipped Within 2 Days Of Receipt.

**Western Systems
& Components Inc.**

1613 N. Orangethorpe Way
Anaheim, CA 92801

714-773-0177

Incredible value!

NashuaTM Diskettes

LIFETIME WARRANTY!

85¢ ea. 5 1/4" SSDD **97¢** ea. 5 1/4" DSDD

Qty. 50

These are poly-bagged diskettes packaged with Tyvek sleeves, reinforced hubs, user identification labels and write-protect tabs. NASHUA Corporation is a half-billion dollar corporation and a recognized leader in magnetic media.

SOFT SECTOR ONLY! Sold in multiples of 50 only!

FOR ORDERS ONLY: **1-800-621-6827**
(In Illinois: 1-312-256-7140)

INFORMATION & INQUIRIES: **1-312-256-7140**

HOURS: 8AM-5PM Central Time, Monday-Friday
WE WILL BEAT ANY NATIONALLY ADVERTISED PRICE ON THE SAME PRODUCTS AND QUANTITIES!

DISK WORLD!, Inc.
629 Green Bay Road • Wilmette, Illinois 60091

DISK WORLD! **NASHUA MAGNETIC MEDIA**
Authorized Distributor

FANTASTIC LOW PRICES ON

BASF QUALIMETRIC DISKETTES!

LIFETIME WARRANTY!

Buy in bulk and save. 150 to the carton with envelopes, write-protect tabs and user ID labels. Boxed product is the same, except in cardboard boxes of 10.

	Qty. 50	Qty. 150
5.25" SSDD	83 ea.	80 ea.
5.25" DSDD	94 ea.	92 ea.
5.25" DSDD-HD	2.13 ea.	N/A
5.25" SSDD-96TPI	.94 ea.	N/A
5.25" DSDD-96TPI	1.06 ea.	N/A
3.50 SSDD-135TPI	1.84 ea.	1.68 ea.
3.50 DSDD-135TPI	2.40 ea.	2.28 ea.

NOTE: 3.50" diskettes in Quantity 50 are packed in plastic library cases. That's why they seem to be a better buy. But there are only 5 diskettes to a case... so the bulk diskettes are really a better deal, unless you like expensive little library cases.

FOR ORDERS ONLY: **1-800-621-6827**
(In Illinois: 1-312-256-7140)

INFORMATION & INQUIRIES: **1-312-256-7140**

HOURS: 8AM-5PM Central Time, Monday-Friday
WE WILL BEAT ANY NATIONALLY ADVERTISED PRICE ON THE SAME PRODUCTS AND QUANTITIES!

DISK WORLD! **BASF**
Authorized Reseller
Information Processing Media

Now, the lowest prices ever on

3M Scotch[®] DISKETTES

LIFETIME WARRANTY!

The best deal on 3M diskettes you've ever seen! FREE! FLIP 'N FILE 15 with every order for 5.25" SSDD and DSDD.



\$1.36 ea. 5.25" SSDD with FREE Flip 'n File 15
\$1.67 ea. 5.25" DSDD with FREE Flip 'n File 15...
MINIMUM ORDER: 50 Diskettes
(Orders less than 50 are \$1.39 and \$1.70, respectively.)

100% LIFETIME WARRANTY!

This is a Super Special Promotion. It was supposed to end May 31, 1985. But we decided to buy more than 1,000,000 3M diskettes packed in the FREE Flip 'n File 15... and give you the benefits of this terrific value.

One word of warning: this offer is limited only to supplies on hand. Once this inventory is gone, that's it. The prices stay the same... but there's no FREE Flip 'n File.

The last time we ran an offer like this, everything sold out in about six weeks. So don't wait. Order now.

Other 3M diskettes

	Qty. 20	Qty. 50
5.25" SSDD-96TPI	\$2.07 ea.	\$2.04 ea.
5.25" DSDD-96TPI	\$2.51 ea.	\$2.48 ea.
5.25" DSDD-HD FOR AT	\$3.18 ea.	\$3.14 ea.
3.50" SSDD-135TPI (Mac)	\$2.29 ea.	\$2.26 ea.

DATA CARTRIDGES
100% certified 3M data cartridges

DC-1000	\$12.62 ea.
DC-300XLP	\$19.38 ea.
DC-600A	\$20.61 ea.

Sold in cases of 10 only.
Add \$5.00 shipping per 10.



FIRST TOUCH KEYBOARD STRIP
The best way we've ever seen to avoid static danger. Adheres to the front ledge of your keyboard. Overpriced at \$19.95, so we cut the price to \$10.95 + \$1.50 Shipping.



A VERY SPECIAL OFFER
3M POST-IT NOTES & DISPENSER
Suggested Retail: \$20.95. Includes dispenser, 12 pads of 3" x 5" Post-It notes and Pilot Ball Point Pen. Order it with 50 3M diskettes or 10 data cartridges and it's only \$9.75 + \$3.00 Shipping.

DISK WORLD! **3M**
Authorized Distributor
Information Processing Products

ATHANA DISKETTES
The great unknown!

79¢ ea. 5 1/4" SSDD **85¢** ea. 5 1/4" DSDD

Qty. 50

You've used these diskettes hundreds of times... as copy-protected originals on some of the most popular software packages. They're packed in poly-bags of 25 with Tyvek sleeves, reinforced hubs, user identification labels and write-protect tabs.

LIFETIME WARRANTY!

SOFT SECTOR ONLY! Sold in multiples of 50 only.

FOR ORDERS ONLY: **1-800-621-6827**
(In Illinois: 1-312-256-7140)

INFORMATION & INQUIRIES: **1-312-256-7140**

HOURS: 8AM-5PM Central Time, Monday-Friday
WE WILL BEAT ANY NATIONALLY ADVERTISED PRICE ON THE SAME PRODUCTS AND QUANTITIES!

DISK WORLD!, Inc.
629 Green Bay Road • Wilmette, Illinois 60091

DISK WORLD! **ATHANA MAGNETIC MEDIA**
Authorized Distributor

DISK WORLD!

Ordering & Shipping Instructions

Shipping: 5 1/4" & 3 1/2" DISKETTES—Add \$3.00 per each 100 or fewer diskettes. **Other Items:** Add shipping charges as shown in addition to other shipping charges. **Payment:** VISA and MASTER-CARD accepted. **COD Orders:** Add additional \$5.00 Special Handling charge. **APD, FPO, AK, HI & PR Orders:** Include shipping charges as shown and additional 5% of total order amount to cover PAL and insurance. **Taxes:** Illinois residents only, add 7% sales tax.

Prices subject to change without notice.
This ad supercedes all other ads.
Not responsible for typographical errors.
MINIMUM TOTAL ORDER: \$35.00

FOR ORDERS ONLY: **1-800-621-6827**
(In Illinois: 1-312-256-7140)

INFORMATION & INQUIRIES: **1-312-256-7140**

HOURS: 8AM-5PM Central Time
Monday-Friday

WE WILL BEAT ANY NATIONALLY ADVERTISED PRICE ON THE SAME PRODUCTS AND QUANTITIES!

DISK WORLD!, Inc.
629 Green Bay Road • Wilmette, Illinois 60091

DISK WORLD!

DISKETTE STORAGE CASES

AMARAY MEDIA-MATE 50: A REVOLUTION IN DISKETTE STORAGE
Every once in a while, someone takes the simple and makes it elegant! This unit holds 50 5 1/4" diskettes, has grooves for easy stacking, inside nipples to keep diskettes from slipping and several other features. We like it!

\$9.69 ea. + \$2.00 Shpg.

DISKETTE 70 STORAGE: STILL A GREAT BUY.
Dust-free storage for 70 5 1/4" diskettes. Six dividers included. An excellent value.

\$9.95 Shpg.

DISK CADDIES
The original flip-up holder for 10 5 1/4" diskettes. Beige or grey only.

\$1.65 ea. + 20¢ Shpg.

FOR ORDERS ONLY: **1-800-621-6827**
(In Illinois: 1-312-256-7140)

INFORMATION & INQUIRIES: **1-312-256-7140**

HOURS: 8AM-5PM Central Time, Monday-Friday
WE WILL BEAT ANY NATIONALLY ADVERTISED PRICE ON THE SAME PRODUCTS AND QUANTITIES!

DISK WORLD!, Inc.
629 Green Bay Road • Wilmette, Illinois 60091

DISK WORLD! **The value leader in Computer supplies And accessories.**

PRINTER RIBBONS:

at extraordinary prices!

Brand new ribbons, manufactured to Original Equipment Manufacturer's specifications, in housings. (Not re-inked or spools only.)

LIFETIME WARRANTY!

Epson MX-70/80 .. \$2.70 ea. + 25¢ Shpg.
Epson MX-100 .. \$4.08 ea. + 25¢ Shpg.
Okidata Micro83 .. \$1.37 ea. + 25¢ Shpg.
Okidata Micro84 .. \$2.98 ea. + 25¢ Shpg.

FOR ORDERS ONLY: **1-800-621-6827**
(In Illinois: 1-312-256-7140)

INFORMATION & INQUIRIES: **1-312-256-7140**

HOURS: 8AM-5PM Central Time, Monday-Friday
WE WILL BEAT ANY NATIONALLY ADVERTISED PRICE ON THE SAME PRODUCTS AND QUANTITIES!

DISK WORLD!, Inc.
629 Green Bay Road • Wilmette, Illinois 60091

DISK WORLD!

DISK WORLD!

Introducing **MicroPEACH** COMPUTERS 16-Bit Personal Computer

Self-Assembly Package — the most compatible & the best price!!!!

ONLY \$899.00

(It is just as easy as to assemble a computer table, however, it saves you at least 100 dollars)

★ ★ Compare Our Features: A Complete Personal Computer That Is Fully Prepared To Do Everything A Personal Computer Should. No Extra Memory Card, Serial Card, Parallel Printer Card, Game Adapter, Or A Multifunction Card Is Needed. -- *Save You Hundreds, Even Thousands.*

- Fully IBM PC/XT compatible, run all popular IBM PC/XT softwares.
- 640KB RAM on the system board.
- 8088 16 bit microprocessor with 8087 coprocessor optional.
- 8 expansion I/O slots.
- Eight 8KB EPROM sockets, seven of which are user usable for program expansion.
- One 360KB half-height 5¼" double density, double sided floppy disk drive. 2nd floppy drive is optional (\$95.00 only).
- Optional 10MB or 20MB fixed hard disk drive.
- Floppy controller.
- Serial port (2nd serial port optional)
- Parallel printer port.
- Game port.
- Battery backed clock/calendar.
- 135W power supply.
- Color graphic card or monochrome graphic card.
- Power-on automatic self-testing of system components.
- High resolution composite monitor.



- ★ Do It Yourself Easily, Get A Lot Of Fun And Save Hundreds, even Thousands. -- This Is Our Idea.
- ★ No Soldering Work And Electronic Experience Is Needed, All The Tool You Need Is A Screwdriver.
- ★ PC User, We Make Your Hobby No Longer Expensive.
- ★ School Can Use This Package For The Educational Purpose.

★ ★ Please Call For The Assembled And Tested Systems ★ ★

IBM PC/XT COMPATIBLES

- **XT-16 MOTHER BOARD**
w/640K **\$299⁰⁰**
- **COLOR GRAPHIC CARD**
640 x 200 **\$95⁰⁰**
- **FLOPPY CONTROLLER**
Handle 4 Drives **\$69⁰⁰**
- **384K MULTIFUNCTION CARD**
Serial, Parallel, Game, Clock/Calendar
w/OK **\$129⁰⁰**
- **512K RAM CARD**
W/OK **\$75⁰⁰**
- **EPROM BURNER**
2716-27/28 **\$149⁰⁰**
- **DISK I/O CARD**
Handle 2 Drives, Serial (2nd Optional)
Parallel, Game **\$139⁰⁰**

PC/AT SPECIALS



- **IBM AT COMPATIBLE MOTHER BOARD** **\$CALL**
- **1.5MB AT MULTIFUNCTION CARD** **\$CALL**
- **1 MB RAM CARD** **\$CALL**
- **I/O EXPANSION CARD**
Serial (2nd Optional).
Parallel, Game **\$CALL**

POWER SUPPLY, CASE, KEYBOARD

- **135 W POWER SUPPLY** **\$125⁰⁰**
10 days free satisfaction trial
- **150W POWER SUPPLY** **\$145⁰⁰**
10 days free satisfaction trial
- **200W AT POWER SUPPLY** **\$CALL**
- **PC/XT CASE** **\$69⁰⁰**
Flip-Top or standard slide-in
- **PC/AT CASE** **\$CALL**
- **PC/AT CASE** **\$CALL**
Same Dimension as IBM AT
- **PC/XT KEYBOARD** **\$79⁰⁰**
Same Layout & Function as IBM Keyboard
- **PC/AT KEYBOARD** **\$CALL**
Same Layout & Function As IBM AT
- **MONITOR**
- **TATUNG COLOR MONITOR** **\$329**
The Company That Make IBM Color Monitor
- **TTL MONOCHROME MONITOR** **\$119**

IBM is a registered trademark of IBM Corp.

Micro PEACH COMPUTERS

(213)865-0049

DEALER & SALES REP. WANTED

12583 Carson St. Hawaiian Gardens, CA 90716



*Make us
an offer we
can't refuse!*

**WE'LL SHOW
YOU OUR
ACTUAL
COST OF
MERCHANDISE
YOU MAKE US
A REASONABLE
OFFER...
YOU'LL GET
THE BUY OF A
LIFETIME!**

NEW FOR
commodore
ENHANCER 2000
DISK DRIVE

\$159⁹⁵

Super high speed slim sign construction commodore compatible direct drive motor.

**SUPER
SPECIAL!**



AUDIO TAPES
TDK-SA90
MAXELL XL2
YOUR CHOICE

1⁹⁹

EA.
Min. purchase 10



VIDEO TAPES
TDK T120
SCOTCH T120
JVC T120
PANASONIC T120
YOUR CHOICE

4³⁹

EA.
Min. purchase 10



**SUPER
SPECIAL!**

MODEMS
ANCHOR HIGH SPEED
1200-BAUD
VOLKSMODEM-12

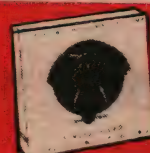
\$179⁹⁵

(COMMODORE COMPATIBLE)



NASHUA

9⁹⁵



ELEPHANT

11⁹⁵



SCOTCH

12⁹⁵

MIX OR MATCH 10 BOXES
& GET 60 DISK HOLDER FREE!



You Set the Price

5

SUPER
SIZE
STORES

PATCHOGUE
437 Sunrise Hwy.
516-475-0560

BAYSIDE
191-28 Northern Blvd.
718-539-9555

W. BABYLON
358 Sunrise Hwy.
516-587-1010

NEW HYDE PARK
2075 Jericho Tpke.
516-437-3020

SYOSSET
27 Jackson Ave.
516-921-5454



C.O.D.

Commodore 128 PERSONAL COMPUTER

128K Expandable to 512K.
40 and/or 80 column full
color display. Professional
typewriter keyboard with
full numeric keypad. Built-
in basic. Full CP/M Plus.

OUR COST OUR PRICE
\$268 \$319

BLUECHIP M120/NLQ PRINTER

Near letter quality but-
ton Tractor/friction.
120cps/25cps. NLQ.

OUR COST OUR PRICE
\$179 \$199

ATARI 520ST COMPUTER SYSTEM

CALL

Includes 512K keyboard,
Monitor, Disk Drive &
Mouse.

BLUECHIP DISK DRIVE

OUR COST OUR PRICE
\$134 \$169

100% Commodore compatible.
Reads & writes programs faster
than Commodore disk drive.
Enhanced technology enables
the BCD/5.25 to be more com-
pact, use less power & gives off
less heat.

Color 13"
Monitor 1 Year
Parts & Labor

TEKNIKA COMPOSITE MONITOR

OUR COST OUR PRICE
\$142 \$169

ATARI 130XE COMPUTER AND 1050 DISK DRIVE

\$299⁹⁵



COMPUTER WHOLESALE

MAIL ORDERS TO: WORLD TRADE 2075 JERICHO TURNPIKE, NEW HYDE PARK, NEW YORK 11040

SPECIAL SOFTWARE FOR THE 128 TIME WORKS

	Our Cost	Our Price
Data Manager	36.93	69.95
Swiftcalc with slideways	36.93	69.95
Word Writer with Spell checker	36.93	69.95

CBS SOFTWARE FOR COMMODORE 64



Grand prize \$10,000 cash
for tuition. 1st prize \$1,000
educational software 2nd
prize \$100 each for school
supplies Plus...with proof
of purchase you will get \$10
rebate on CBS software's
Easy Key programs.

	Our Cost	Our Price
Dr. Seuss Fix Up The Mix-Up Puzzle	17.00	29.95
Many ways to say I Love You	17.00	29.95
Astro-grover	20.00	34.95
Big Bird's Funhouse	20.00	34.95
Ernie's Magic Shapes	14.00	24.95
Weather Tamers	11.00	19.95
Forecast	28.00	49.95
Dinosaur dig	23.00	39.95
Coast to Coast	23.00	39.95
Mastering the SAT	47.94	77.95
Success with Math Series	15.00	24.95
Success with Algebra Series	20.00	34.95
Muppet Learning Keys	52.00	89.95

WORD PROCESSING

	Our Cost	Our Price
Fleet system 2 w/70,000		
Word spellpak	50.00	89.95
Front master	12.00	24.95

MODEMS

	Our Cost	Our Price
Video 7	40.00	79.95
Miley Mo (1 hour free computer time)	55.00	89.95
West Ridge	54.00	89.95

ACCESS SOFTWARE

	Our Cost	Our Price
Neutral Zone	20.00	34.95
Mach 5	21.00	34.95
Beach-Head II	24.00	34.95

TIMEWORKS SOFTWARE

	Our Cost	Our Price
Data Manager II	29.97	49.95
Evelyn Wood Dynamic Reader	29.97	49.95
Work Writer with Spellcheck	29.97	49.95
Swiftcalc w/Sideways	29.97	49.95
Cave of the Word Wizards	20.97	34.95

EPYX SOFTWARE

	Our Cost	Our Price
Hot Wheels	17.97	29.95
Summer Games II	19.00	39.95
Fast Load	19.00	29.95
Barbie	17.97	29.95
Breakdance	19.00	29.95
Baseball	19.00	34.95
Pitstop II	19.00	34.95
9 to 5 Typing	23.97	34.95

INTERFACES

	Our Price
Xetec Super Graphix	50.00
8K Buffer 10 printing modes	
Super Graphix Jr.	30.00
Tymac Connection	
G-Wiz	45.00

DISKETTES

FREE EXTRA DISK INSIDE
Featuring Success with Math, and
Success with Algebra by CBS.
(For Commodore Only!)

Elephant
(box of 10) DD/DS **1050 11.95**

	Our Cost	Our Price
Nashua DD/DS (box of 10)	9.00	12.95
Nashua diskettes 3 1/2"		
DD/SS (box of 10)	8.00	14.95
Nashua (box of 10)		
DD/SS	22.50	34.95
Scotch (3M) (box of 10) DD/SS	10.99	14.95
Scotch Head Cleaner Kit	8.70	14.95



NEW! NIBBLE NOTCH

Turns your 5 1/4"
single Disk into
A 2 Sided Disk **\$5 \$14.95**

DISK FILES

	Our Cost	Our Price
10 Disk Holder	4.70	7.00
60 Disk Holder (stackable)	8.00	14.95

MONITORS

	Our Cost	Our Price
Commodore 1702	158.00	189.00
Sharp 13" Color Composite	148	169.00
Sharp green 12"	50.00	79.00
Sharp amber 12"	53.00	89.00
Teknika RGB/Composite 13"	225	275

JOYSTICKS

	Our Cost	Our Price
Wico Boss	9.00	19.95
Wico Bal	11.00	15.95
Wico Threeway	18.00	27.95
Gim 1000-left/right firing button	7.00	14.95

PRINTERS

	Our Cost	Our Price
Blue Chip M150/10 Tractor/Friction 130cps	180.00	249.00
Blue Chip M150/15 StarSG10 Tractor/Fric- tion 130cps	195.00	259.00
Blue Chip 120/NLQ	175.00	239.00
Blue Chip 120/NLQ	180.00	249.00
SG10-C w/built in Com- modore Interface	218.00	269.00
Okimate 10 color	180.00	249.00
Legende 808	148.00	179.95
Legende 880	205.00	239.95
Legende 1080	227.00	269.95
Legende 1380	272.00	300.95
Legende 1385	342.00	379.95
Cardco LQ3 letter quality		

PAPER & RIBBON

Delivery on paper
included in price

paper size
9 1/2 x 11"

	Our Cost	Our Price
1000 x 3 boxes		
Microperfl	35.00	70.00
2700 microperfl	28.00	62.00
Ribbon bluechip	7.00	14.95
M120/M150		
Ribbon SG10/SG15/ Okimate 82A	2.00	4.95

SURGE PROTECTORS

	Our Cost	Our Price
6 Outlet with lighted switch	17.00	29.95
Surge Plus	22.00	34.95

OSS SOFTWARE

	Our Cost	Our Price
Basic XL	47.00	79.00
Basic XE	57.00	99.00
Mac 65	57.00	99.00
Action	57.00	99.00
Dos XL w/Bug 65	24.00	39.00
Bug 65	21.00	34.00
Writers Tool	57.00	99.00
Action Tool Kit	24.00	34.95
Basic XL Tool Kit	24.00	34.95
Mac 65 Tool Kit	24.00	34.95

BATTERIES

INCLUDED SOFTWARE

	Our Cost	Our Price
Paper Clip	50.00	79.00
B. Graph	41.00	69.00
Home Pak	29.00	45.00

BRODERBUND SOFTWARE

	Our Cost	Our Price
Print Shop	25.00	39.95
Print Shop Lib I	14.00	24.95
Print Shop Lib II	14.00	24.95

TK SOFTWARE

	Our Cost	Our Price
Monday Morning	21.00	29.95
Manager	21.00	29.95
Bowling Version 2	21.00	29.95

PROFESSIONAL SOFTWARE

	Our Cost	Our Price
Fleet System II Work Pro- cessor with built in spell check	50.00	89.95

NEW! MINDSCAPE INC.
PRESENTS "THE HALLEY
PROJECT: A MISSION IN OUR
SOLAR SYSTEM".....CALL
FOR USE WITH BOTH
ATARI & COMMODORE

TO ORDER

CALL 1-800-722-4002

ORDER LINE ONLY

OUTSIDE N.Y.

NEW! BIG FIVE SOFTWARE
PRESENTS "BOUNTY BOB
STRIKES BACK!".....CALL
FOR USE WITH BOTH
ATARI & COMMODORE

IN NEW YORK 1-718-895-2388
WHEN IN THE NEW YORK AREA VISIT OUR
5 BIG L
STORES.
• West Babylon • New Hyde Park • Syosset
• Patchogue • Bayside

Check, Money Order, MC or VISA accepted/Call for shipping and handling information / NYS
residents add applicable sales tax / Prices and availability are subject to change without notice /
Air factory fresh merchandise with manufacturer's warranty. Dealers welcome. Call for recent
price reductions and new rebate information. No returns without prior authorization.
FOR INFORMATION & CUSTOMER SERVICE CALL 1-718-895-2388





**WOLFF COMPUTER
& ELECTRONICS**
(214) 423-8097
901 E. Plano Pkwy, #113
Plano, TX 75074
Mon-Sat 10:00am to 6:00pm

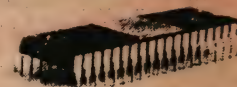


NEC 8088 REPLACEMENT...
speed up your instruction set speed by 33% just by replacing
your 8088 processor!

5 MHz.....\$24.50
8 MHz.....\$32.50

NEC 8086 REPLACEMENT...

now you can replace your 8086 processor for up to 8 MHz
new.....\$39.95



SUPER XT SYSTEM

\$1029.00

- * multifunction card w/ØK (optional 384K), serial, parallel and game ports, clock calendar, Ramdisk/print spooler software
- * two DSDD 5¼ half-height drives
- * color graphics or monochrome card
- * amber or green, TTL or composite monitor
- * slide-out PC look-alike case
- * 135 W hard disk ready power supply
- * 5150 style keyboard
- * floppy disk controller
- * 8 card slots
- * 4.77 MHz operation
- * fully compatible
- * 256K RAM
- * free tutorial DOS
- * fully tested



TURBO XT SYSTEM

\$1289.00

- * disk plus I/O card w/serial, parallel and game ports, clock calendar and floppy controller
- * two DSDD 5¼ half-height drives
- * color graphics or monochrome card
- * amber or green, TTL or composite monitor
- * slide-out PC look-alike case
- * 135 W hard disk ready power supply
- * 5150 style keyboard
- * software selectable clock speeds: 4.77MHz or 7MHz turbo speed
- * 8 card slots
- * fully compatible
- * optional math co-processor
- * free tutorial DOS
- * 640K on board
- * fully tested

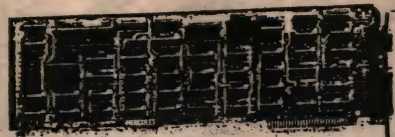
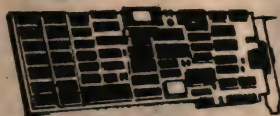
JOIN THE WOLFF PACK...WE MAKE HOWLING GOOD DEALS!

***** SUPER ***** SAVING ***** SPECIALS *****

Multifunction Card w/ØK (upgradable to 256K), two serial (second port is optional), parallel & game ports, clock calendar, software for RAM disk and print spooler, w/cables.....\$99.00

5 Meg DISK DRIVE w/CONTROLLER...\$239.00

for the price of the controller alone, you can not only get that controller, but a 5 Meg hard disk too!! We have them howling!!!

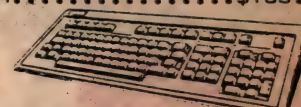


CARDS & BOARDS

- TTL monochrome graphics card w/parallel port.....\$179.00
- TTL monochrome graphics card w/serial port.....\$169.00
- parallel card.....\$ 36.00
- serial card (second port optional).....\$ 39.00
- memory card w/64K optional to 384K.....\$ 79.00
- TTL monochrome card...w/o parallel.....\$129.00
- ...w/parallel.....\$119.00
- color card (Hercules compatible) 4" long.....\$ 99.00
- color card w/parallel port (Hercules compatible) 4" long.....\$119.00
- monochrome graphics display w/parallel port 720x348 resolution.....\$119.00
- game I/O: 2 game control I/O port & user manual...\$ 59.00
- multifunction card w/2 serial ports (second is optional), parallel port, game port, clock calendar, software and cables.....\$133.00
- multifunction card w/ØK (upgradable to 384K), two serial ports (second is optional), parallel port, clock calendar, software for RAM disk & print spooler w/cables.....\$129.00
- (above card w/384K.....\$169.00
- multifunction card w/floppy controller, serial, parallel, game ports, clock calendar, software for RAM disk & print spooler w/cables.....\$179.00
- X-Turbo board w/8 slots, 640K, 2 clock speeds @ 4.77MHz and 7MHz, software selectable, fully compatible.....\$395.00
- SUPER XT board w/256K, 8 slots, 4.77MHz clock, fully compatible.....\$189.00
- Magic Video display card w/TTL, RGB and composite monitor support, light pen interface, 5 graphic modes, 4 test modes, 640x200 color & 640x352 monochrome & 640x400 color graphics.....\$189.00
- local area network card w/share bus local area network, PC sharing, capacity to handle 127 stations, file lock/unlock & security functions, electronic mail software included, operates under PC-DOS 2.0, 2.1 and MS-DOS 2.11.....\$269.00

PC ADD-ONS...KEYBOARDS:

- 5150 style.....\$ 74.00
- 5151 style.....\$119.00
- PC-AT by Micro Switch (2 yr warranty).....\$119.00
- 3270 structured by Micro Switch.....\$139.00



PC ADD-ONS...MONITORS:

- TTL or composite, amber or green.....\$ 99.95
- composite amber or green (pedestal mounted)....\$109.95
- color RGB 640 x 200 res, switches to green....\$379.00

PC ADD-ONS...POWER SUPPLIES:

- 65 W side switch supply.....\$ 69.00
- 135 W side switch supply.....\$ 99.00
- 150 W side switch supply.....\$129.00
- 200 W side switch supply.....\$189.00



PC ADD-ONS...MISC.:

- slide-out case.....\$ 74.00
- Western Digital hard disk controller w/cables...\$159.00
- floppy controller w/cables.....\$ 69.00
- PC joysticks.....\$ 21.95
- parallel printer cable (PC).....\$ 11.95
- 300/1200 baud interugal modem for the PC.....\$189.00
- modem cable.....\$ 11.95

**SOFTWARE DOESN'T HAVE TO HIGH PRICED
TO BE HIGH PERFORMANCE...**

PAPERBACK SOFTWARE, INC.

- Number Works.....\$39.95
- Executive Writer.....\$69.95
- Paperback Writer.....\$39.95
- My ABC's.....\$19.95
- Draw It.....\$29.95
- Executive Filer.....\$49.95
- Paperback Speller.....\$39.95

...and the AMAZING new spreadsheet...VP-planner.....\$99.95

DAC SOFTWARE, INC.

DAC-Easy Accounting...(includes 7 powerful, integrated packages).....\$59.95

DATADISK

96 TPI drive software...(enables your PC to run 96 track drives)....\$39.00

USED EQUIPMENT

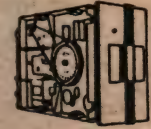
B/W video monitor in case w/schematics & pinouts,
uses separate horizontal, vertical & video sync
needs +12V....(new in box).....\$ 24.95

AMDEK II color RGB monitors pulled from deinstalled
equipment, mounted on wood frame.....\$109.00
NEC Facsimilie machine.....\$149.00
Brother HR1 letter-quality printer, 16 cps.....\$295.00
Teletype model 43 w/acoustic coupler KSR model.....\$119.00
Amber monitors (great for Xerox 820).....\$ 33.95
MFE double-sided 8" drives for Xerox 820.....\$ 69.00
Franklin 1200 ACE (Apple compatible) w/green screen,
dual 5 1/4 drives, Hayes 300 baud internal modem.....\$650.00
Eagle PC2 w/384K expandable to 512K, 2 serial, 1
parallel port, Hi-res green screen, 2 DSDD TEAC.....\$900.00
Sanyo MBC555 system w/Panasonic monochrome monitor.....\$650.00
Sanyo daisywheel model PR5000 printer: 16 cps, two
extra print wheels, ribbons & manuals...like new.....\$400.00
Centronics dot matrix printer, wide carriage.....\$700.00
Xerox 820-2 w/low-profile keyboard, DSDD 5 1/4 drives,
16-8 board, lots of CP/M 2.2 software.....\$950.00
Xerox 820-2 w/dual 5 1/4 drives, software.....\$750.00
Paradyne T-48 4800 baud modem.....\$100.00
ADDS "Epic" smart terminal w/swivel base.....\$225.00
Anderson-Jacobsen accoustical coupler (300 baud).....\$ 50.00

* CONDITIONS & GUARANTEES VARY. MANY HAVE LOTS OF EXTRA GOODIES.
ALL ARE SOLD ON A FIRST COME BASIS.

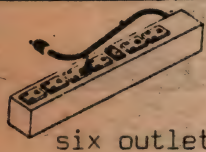
DISK DRIVES: NEW

Qume half height DS.....\$ 69.95
Shugart 455 96TPI DS.....\$ 99.00
Shugart 465 96TPI DS.....\$109.00
10 Meg full height HD.....\$309.00
10 Meg half height HD.....\$345.00
20 Meg full height HD.....\$425.00
20 Meg half height HD.....\$495.00
10 Meg Shugart 8" 220V/50Hz.....\$ 95.00



DISK DRIVES: USED/SURPLUS

5 1/4" Tandon full height SS.....\$ 29.00
5 1/4" half height floppy SS.....\$ 49.00
5 1/4" full height floppy DS.....\$ 59.00
5 1/4" half height floppy DS.....\$ 69.00
8" Shugart SS.....\$ 59.00
8" MFE DS.....\$ 69.00
10 Meg full height 5 1/4 HD.....\$275.00
10 Meg half height 5 1/4 HD.....\$325.00
20 Meg full height 5 1/4 HD.....\$415.00
20 Meg half height 5 1/4 HD.....\$455.00



\$14.95

six outlet
AC SURGE SUPPRESSOR



5" muffin fan 120V AC
(deinstalled equipment)

\$4.95

RAM CHIPS



64K 150ns...9/ 5.49....\$.89/ea
128K.....9/36.49....\$4.99/ea
256K.....9/32.00....\$3.49/ea

VOLTAGE REGULATORS

7805T = 5V
7812T = 12V 45¢
7815T = 15V
7824T = 24V



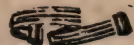
RESISTORS / CAPACITORS / SWITCHES / TERMINAL BLOCKS / PARTS / COMPONENTS

SOCKETS

14 pin.....\$.12/ea
16 pin.....\$.15/ea
18 pin.....\$.15/ea
20 pin.....\$.20/ea
24 pin.....\$.25/ea
28 pin.....\$.25/ea
40 pin.....\$.32/ea
40 pin Augat.....\$.45/ea
80186 sockets.....\$4.95/ea

RIBBON CABLE ASSEMBLIES

•34 pin header on one end & 34 pin edge connector
on the other, 22" long.....\$5.95
•20 pin header on one end & 20 pin edge connector
on the other, 22" long.....\$4.95
•50 pin header on both ends, 3" long.....\$1.95
•40 pin header on both ends, 12" long.....\$2.95



POWER SUPPLIES:



Atari power supply modules
output is 9V @ 150 ma

.....\$ 2.50

18V AC supply 4 1/2 x 4 x 1

+ 5V @ 1.2A
+12V @ .5A
- 5V @ .3A

.....\$ 4.95

SCRAP 18 x 5 1/2 x 7 powerhorse

+ 5V & +12V includes:
fan, AC & DC breakers and
voltage adj. pots.

.....\$ 6.00

Astec supply 6 1/2 x 5 1/2 x 4

input voltages: 115/230V AC

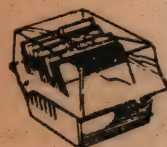
+ 5V @ 6A
+ 9V @ 1.5A
+12V @ 2A
+17V @ 1.5A
+34V @ 2.25A

complete with cooling fan!

.....\$29.95



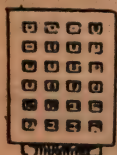
WE MAKE CABLES...ALL KINDS



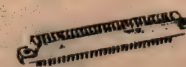
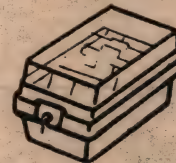
Signalman Mark XII modem.....\$289.00
Zenith Model ZVM122 & 123 green or amber
composite monitors.....\$ 79.00 *

Diskette storage boxes...75 unit.....\$ 8.49
..100 unit.....\$ 13.49

Y-kit connectors, turn one power supply
into two outputs.....\$3.75



Numeric keypads w/serial output.....\$ 4.95
Empty modem boxes (10 x 8 1/2 x 3).....\$ 2.95
3-prong AC cables for PC monitor.....\$ 1.89
Fuse/switch assemblies w/3-prong AC plug..\$ 1.50
Edge connector Bus 100 connectors.....\$ 2.00
86 pin connectors.....\$.75
70 pin connectors.....\$ 1.60
Terminal strips: 4,6,8,10,12,15 position..\$.59
Rubber feet...4/strip.....\$.49



AB SWITCH BOXES \$39.00



RS232-Serial
switch boxes
by Data Switch

WOLFF COMPUTER
& ELECTRONICS

(214) 423-8097

901 E. Plano Pkwy, #113
Plano, TX 75074

Mon-Sat 10:00am to 6:00pm

• Prices DO NOT include shipping
• VISA & MasterCard add 3%
• COD's add \$1.90
• Checks accepted, allow 10 days to clear
• Dallas MTA add 6 1/8%
• Other Texas residents add 5 1/8%
• Prices subject to change without notice
• We reserve the right to limit quantities



ATTN: DEALERS**PROTO PC INC. 612-644-4660****HARD DISK SYSTEMS**

These top quality system is **twice as fast** as the IBM XT hard disk, and come complete with everything your customer needs, including: Low-power drive (½ height), and WD controller, two cables for internal mounting, and a **1 year warranty**. The system will run on the IBM PC using the standard power supply, and PC DOS 2.1. Full height panels + \$5.00. Power 'Y' cable + \$4.00. Rodime Double Shock Mount Drive + \$75.00 10 MEG Only.

10 MEG**SPECIAL!**

QTY 3

\$419 each!**20 MEG**

as above, but 20 MEG ½HT low power drive.

\$539 each!**FAST DRIVES!**

These **high performance** drives are well suited to the IBM PC/AT, Networks, or any other use where maximum performance and high capacity are required. 44 MEG requires partitioning software to use with PC-DOS. All are *brand new*, and carry a full **one year warranty**. We can supply mounting rails, data cables, screws, and other helpful installation accessories. **Call Now!!!!!!**

Formatted**22**MEG FAST 55MS AVG. ACCESS**32**MEG FAST 55MS AVG. ACCESS**44**MEG FAST 55MS AVG. ACCESS**22**MEG FASTER 40MS AVG. ACCESS, VOICE COIL**30**MEG FASTER 40MS AVG. ACCESS, VOICE COIL**QTY 3 DEALER PRICE**

DRIVE ONLY FOR AT, ETC.	INT. SYS. W/CARDS/CABLES
\$535!	\$698!
714	854
858	998
753	890
856	996

THESE TOP-QUALITY, **BRAND NEW DRIVES**, FULL HI RUN ON IBM AT OR XT, 130 WATT SUPPLY PC DOS 2 OR 3, WARRANTIED FOR FULL YEAR.

HARD DISK AND TAPE CONTROLLERS

QUANTITY BUYERS: CALL!

WD1002S-WX2 — COBRA CARD - Your Best Choice For IBM-PC **\$139!****WD1002-SHD** — SASI BUS Hard Disk Controller **199****WD1002-HDO** — HDO BUS Hard Disk Controller **199****WD1002-05** — HDO BUS Hard and Floppy Disk Controller **\$229****WD1036-WX2** — PC BUS Q/C-36 Tape Controller **249****WD4028-PC** — NOVELLE NETWORK BOARD **CALL****CARDS**

QTY 3 ea.

MONO/GRAPHIC, w/Par Port, Opt Serial **\$124****6-PACK** Look-A-Like, w/Game, OK **124****FLOPPY CONTROL**, 4 drive w/cable **56****COLOR CARD** **99****FLOPPY DRIVES**

QTY 4-9 ea.

TEAC 55B FLOPPY DS, 48TPI, Slim **\$89****PANASONIC JA551-2**, DSDD, Slim **81****TANDON TM100-2A**, DSDD **98****ALL DRIVES** checked and aligned before shipping **FREE**

THESE ARE BRAND NEW, PRIME PARTS, 150NS, FULL 1 YEAR WARRANTY, CALL FOR LATEST PRICES!

QTY. 300

RAM**64K** 150NS **\$.49!****128K** 150NS **3.97!****256K** 150NS **2.59!**

PROTO PC INC.

IS YOUR BEST SOURCE FOR DRIVES, RAM, CARDS, CAD & SERVICE !

Proto PC offers the experience, reliability, and innovation you need to advance your business.

TRUST OUR EXPERIENCE AND REPUTATION -
We've been satisfying customers since 1976.
WE WANT YOU TO SUCCEED!

RELY ON OUR SUPPORT -
Our superior technical staff is here to serve you.
OUR EXPERTS ARE HERE TO HELP!

TAKE ADVANTAGE OF THE BEST WARRANTY AVAILABLE -
We back our hardware - FULL ONE YEAR WARRANTY.
WE'LL MAKE IT WORK FOR YOU!

BUY AT OUR LOW PRICES -
We're committed to QUALITY PRODUCTS at
COMPETITIVE PRICES. CALL US FOR LATEST QUOTES!

TRUST OUR REPAIRS -
We offer a complete repair facility and 10 YRS EXPER
WE SPECIALIZE IN IBM PC/XT AND COMPATIBLE!

MAKE THE MOST OF OUR PROMPT SERVICE -
We ship same day on stock items.
FREE SHIPPING ON PREPAID ORDERS!

ASK ABOUT OUR OUTSTANDING QUANTITY DISCOUNTS!

CALL FOR LATEST QUOTES!

NEW! - HARD DISK TEST & FORMAT SOFTWARE - NEW!

- Great for Dealers & Service Shops, Anyone Installing Hard Drives in IBM PC/XT and Compatibles
- Lets You Mark Off Known Bad Tracks From Drive Label
- Does Surface Scan to Find Unlisted Bad Tracks
- Fast, Easy to Use, Thorough, Flexible
- Lets You Format Any Drive Up to 8 Heads, 1024 CYL.
- On Screen Help Windows
- Save/Load Bad Track Files, Program Setup, Etc.
- Far Superior to Advanced Diagnostics
- Only \$58 DEALER COST! \$99 RETAIL

REPAIR SPECIALS!

IBM PC/XT MAIN BOARD REPAIR **\$89⁰⁰!**
5 1/4" DISK DRIVE REPAIR 39⁰⁰!

We service most major brands: TANDON TM 100-X, CDC, TEAC, PANASONIC, SHUGART, MITSUBISHI, CALL FOR OTHERS.

ALSO: Color Graphics Card, IBM, IDS **\$69**
MONO CHROME CARD, IBM Only **69**
5 1/4" DRIVE ADAPTER, IBM, Maynard Faraday, IDS **45**
AST. 6 PAK CARDS, IBM, AST, Quadram **69**

ALL REPAIRS - 90 Day Warranty 7-10 Day Turn Around, 2 Day Add 50%

DEALER DISCOUNT 10% OFF!

QUANTITY 4 & UP 20% OFF!

REPAIR TERMS: RATES QUOTED FOR LABOR. BECAUSE OF SALES TAX REGS., WE QUOTE PARTS SEPARATLY

DIAGNOSTIC PRODUCTS

INTERROGATOR FOR IBM PC
(We use this on all outgoing drives to check align and R/W performance.) **\$129**

ALIGNMENT DISK 5", DS, 48 TPI 224/2A **\$49**
ALIGNMENT DISK 5", DS, 96 TPI, 206/30 **49**
DIGITAL DIAGNOSTIC DISK 48 TPI **39**



EX 2000 FLOPPY FIXER

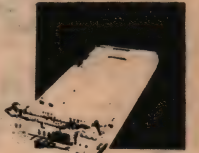
(Works with 5" or 8" Drives)

The EX 2000 is a microprocessor based test instrument used to align and repair floppy disk drives with industry standard interfaces. The EX 2000 is used with an oscilloscope, an alignment disk, and a service manual. The EX 2000 'exerciser' is the 'stimulus' to the drive. The alignment disk provides the reference waveforms, the service manual tells you what to adjust and how to measure it, and the 'scope' is the visual feedback for aligning the drive to specifications.

UNIQUE FEATURES

- Single keystroke for any alignment track.
- Writes and erases track
- Hysteresis check with single key.
- Speed check (Instantaneous and Average).
- Easy test points: INDEX, READ DTA, MTR ON, WRITE DTA
- Top quality European keys, and gold connectors.
- This is the fastest, easiest to use exerciser on the market.

FAST AND EASY TO USE!



EX 2000 OWNERS INCLUDE: NASA, RCA, IBM, FAA, Lawrence Livermore Labs, Computerland, Xerox, Indeserv, Navy, Army, ATT, Bell Labs, and 100's of computer dealers, universities, and individuals. **EX 2000 \$299.⁰⁰**

USED BY: NASA, FAA, XEROX, INDESERV, COMPUTERLAND, RCA, CBS, ABC, IBM, ARMY, NAVY, ETC.



TERMS: PRICES LISTED Reflect Cash Discount For PREPAID or COD Cash/Cashiers Check. Personal/Business Checks = 2 Weeks For Immediate Shipping, Telecheck = +1%, Visa/Master Card = +4%.

IBM PC, XT, AT, Inter Active Data, Novell are trademarks of their respective companies.



Proto PC inc.

SINCE 1976...
CALL NOW!

612-644-4660

HRS: 9 to 6 M thru F 2439 Franklin Ave. St. Paul, MN 55114 TLX# 910 380 7623

3M
diskettes

SUPER SAVER

get 10 disk
"free"

Limited time offer

Purchase 9 boxes of the same type diskette and we'll give you another box of the same type **Free.**

5¹/₄"
SS-DD \$14²⁵

DS-DD \$17⁴⁵

5¹/₄" 96tpi
SS-DD 96tpi \$20⁶⁵

DS-DD 96tpi \$25⁷⁵

8"
SS-SD w/wp \$19⁹⁵

DS-DD w/wp \$28⁹⁵

*Price per Box of 10ea.

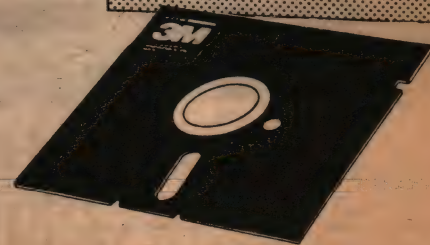
call toll free

East "Delaware" 1-800-451-1849

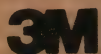
Central "Oklahoma" 1-800-654-4058

West "Nevada" 1-800-621-6221

the **Diskette**
Connectiontm

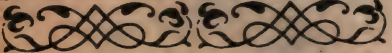


TERMS: Minimum 20 disks or \$35⁰⁰ — VISA or MasterCard accepted. COD orders add 2% for special handling. **SHIPPING:** 3¹/₄ & 5¹/₄ Diskettes: Add 3% for every 100 Diskettes or any fraction thereof. 8" Diskettes: Add 4% for every 100 Diskettes or any fraction thereof. We ship UPS; orders requiring other delivery methods add shipping plus 2% of total order.



Authorized Distributor
Information Processing Products

Verbatim® DataLife®

Lifetime Warranty


8"

DISKS

S-SIDE
S-DENSITY **19⁹⁵**

S-SIDE
D-DENSITY **21⁹⁵**

D-SIDE
D-DENSITY **24⁹⁵**

● SPECIAL FORMATS ●
"CALL"

5¹/₄"

DISKS

S-SIDE
D-DENSITY **13⁹⁵**

D-SIDE
D-DENSITY **17⁴⁵**

S-SIDE
QUAD-96tpi **21⁶⁵**

D-SIDE
QUAD-96tpi **26⁹⁵**

3¹/₂"

DISKS

S-SIDE
135tpi **23⁹⁵**

**DIGITAL
CASSETTES
"CALL"**

the
**Diskette
Connection™**



CALL TOLL FREE

* Delaware 1-800-451-1849

P.O. Box 10247 Wilmington, DE. 19850

* Oklahoma 1-800-654-4058

P.O. Box 1674 Bethany, OK. 73008

* Nevada 1-800-621-6221

P.O. Box 1213 Boulder City, NV. 89005

TERMS: Minimum 20 disks or \$35⁰⁰ — VISA or MasterCard accepted
C.O.D. orders add 2⁰⁰ for special handling. **SHIPPING:** 3¹/₂" & 5¹/₄" Diskettes;
Add 3⁰⁰ for every 100 Diskettes or any fraction thereof. 8" Diskettes; Add
4⁰⁰ for every 100 Diskettes or any fraction thereof. We ship UPS; orders
requiring other delivery methods add shipping, plus 2% of total order.

maxell®

FLOPPY DISK

8"

S-SIDE
D-DEN.24⁹⁵D-SIDE
D-DEN.26⁹⁵

5 1/4"

S-SIDE
D-DEN.12⁴⁵D-SIDE
D-DEN.16⁹⁵S-SIDE
96 tpi21⁹⁵D-SIDE
96 tpi25⁹⁵HIGH
DENSITY36⁹⁵

3 1/2"

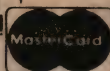
SINGLE
SIDE23⁹⁵DOUBLE
SIDE33⁹⁵

3 LOCATIONS FOR QUICK DELIVERY.

CALL TOLL FREE

the

Diskette Connection™



* Delaware 1-800-451-1849

P.O. Box 10247 Wilmington, DE. 19850

* Oklahoma 1-800-654-4058

P.O. Box 1674 Bethany, OK. 73008

* Nevada 1-800-621-6221

P.O. Box 1213 Boulder City, NV. 89005

TERMS: Minimum 20 disks or \$35⁰⁰ — VISA or MasterCard accepted
 C.O.D. orders add 2⁰⁰ for special handling. SHIPPING: 3 1/2" & 5 1/4" Diskettes;
 Add 3⁰⁰ for every 100 Diskettes or any fraction thereof. 8" Diskettes; Add
 4⁰⁰ for every 100 Diskettes or any fraction thereof. We ship UPS; orders
 requiring other delivery methods add shipping, plus 2% of total order.



COMPUTER ACCESSORIES



PARADISE 5 PACK

Top quality multifunction card expands PC type CPU's up to 384k of ram, serial port, clock, calender, ram disk, and print spooler software.

0-384k card \$174
384k card \$269

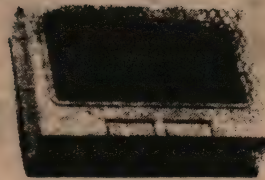
\$3 for shipping

DATAPRODUCTS PRINTERS 8012 & 8022

EPSON compatible control codes, IBM graphics, built in adjustable tractor feed, 3 print modes: draft (180 cps), text (90 cps), near letter quality (30 cps), 2K buffer, and built to last!!
1 YEAR Warranty.

80 column (8012) \$388.00*
132 column (8022) \$575.00*

*\$9 Shipping & Handling



A Time Saver! Parallel A-B Switch Box

Switches all 36 lines
Connects 2 CPU's to 1
Printer
or 1 CPU to 2 Printer's

\$65.88
\$2 for shipping

THE MICRO BOOK

An excellent guide that lets you know what's going on inside your computer in a language that you can understand. The ideal book for engineers or the student that can't wait 4 years.

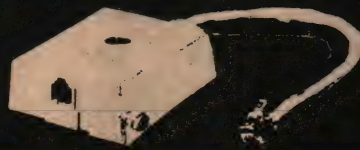
Advertised in this same publication.

\$21.88
\$3 for shipping

Hexace Tech Color Card

Fits PC/XT short slot. Custom circuit chips to reduce size and power consumption, same slot parallel port. Fully compatible with all IBM color software & RGB monitors.

\$140
\$2 for shipping

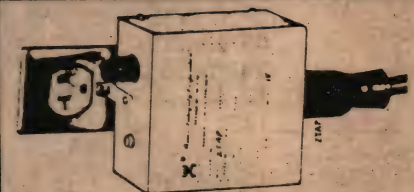


Modem Spike Protector squashes spikes before damage can be done to your phone accessories. Response time (5 nanoseconds). 100% spike protection from line to line and line to ground. Exceeds telephone line standards for maximum high voltage protection. And easy to install.

\$2 for shipping **\$42.88**

Western Digital Hard Disk Controller Card for IBM's & look a likes Only 8.1" long

\$185
\$2 for shipping



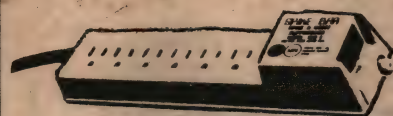
State of the Art in spike protection, the ZTAP with its 4 stage filtering will protect the finest electrical equipment that you have. The complete metal case unit protects against RFI/EMI, Spikes and Surges to the utmost degree.

\$165
\$3 for shipping

BASF™ 5 1/4" DISKETTES QUALIMETRIC

SSDD \$13.88*
DSDD \$16.88*
BOX OF 10 DISKETTES

*Add 50¢ Per Box Shipping & Handling



SK 6-6 Spike Bar
Protects against RFI/EMI, spikes and surges, 15 amps, (5 nanosecond response time) 6 outlets, 6 ft. cord master on/off switch.

\$38.95
\$2 for shipping

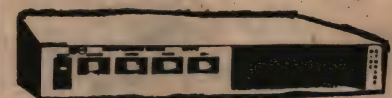
Miniscribe Winchesters

These half height drives are of the highest quality for the most reliability for your data. Uses only 14 watts. All drives come with cables.

Full height bezel add \$14

10 meg 3212 \$498
20 meg 3425 \$629

\$5 for shipping



Metal case, spike & noise suppression, 4 switches for 4 duplex outlets, 1 master on/off switch, sits under any monitor/CRT

\$99.88
\$4 for shipping

CUSTOM CABLES AVAILABLE

Parallel or Serial
also Gender Changers

NO EXTRA CHARGE FOR



OR



DEALER INQUIRIES WELCOME
IL RES ADD 7% SALES TAX

SHEPHERD MARKETING

P.O. BOX 941339 SCHAUMBURG, IL 60194

ORDERS ONLY
1-800-AC-SPIKE

TECH SUPP. & ILL RES.
1-312-894-5331

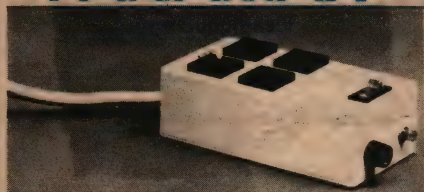
**SEE OUR OTHER AD ON
PAGE 11**

COME SEE OUR SHOW ROOM AT 800 LUNT AVE., SCHAUMBURG

ADEPT CABLE & SUPPLY, INC.

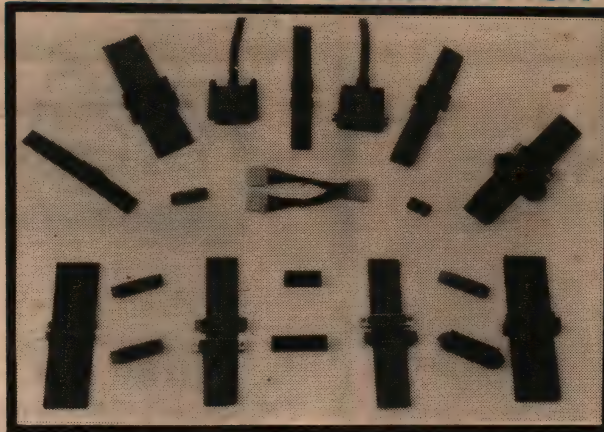
DRIVE CABLES

PANAMAX



PLEASE CALL

WE MAKE ANY COMBINATION



LET US SUPPLY YOU!



D-Sub Cable Connector

Price/Qty.

	1-99	100-UP	
9M.....	2.58	2.40	Call
9F.....	2.75	2.50	Call
15M.....	3.45	3.05	Call
15F.....	3.80	3.45	Call
25M.....	4.35	3.95	Call
25F.....	4.50	4.05	Call
37M.....	5.70	5.25	Call
37F.....	6.80	6.20	Call



Ribbon Cable Socket

Price/Qty.

	1-99	100-UP
10 S	0.82	0.74
16 S	1.04	0.95
20S	1.12	1.02
26 S	1.32	1.20
34 S	1.75	1.45
40 S	1.92	1.75
50 S	3.25	2.20
60 S	3.78	2.62



DIP PLUG

Price/Qty.

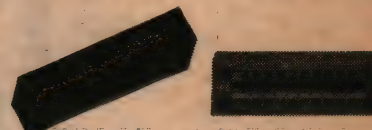
	1-99	100-Up
14 D.....	0.71	0.65
16 D.....	0.95	0.85
24 D.....	0.82	0.78
40 D.....	1.95	1.65



Solder Pot D-Subs

Price/Qty.

	1-49	50Up
DB9 M/F.....	1.60	1.40
DB15 M/F.....	2.10	1.95
DB25 M/F.....	1.75	1.60
DB37 M/F.....	3.80	3.50



Card Edge Connectors

Price/Qty.

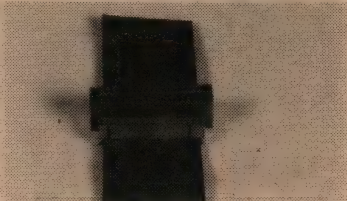
	1-99	100-Up
20 CE.....	1.90	1.60
26 CE.....	2.20	1.85
34 CE.....	2.60	2.25
40 CE.....	2.95	2.50
50 CE.....	3.50	2.90



36 POS Centronics to 25 POS D-Sub

36M/F-25M/F

	1-99	100-Up
14.50 .60/Ft.....	Call	



Card Edge to Socket

Price/Qty.

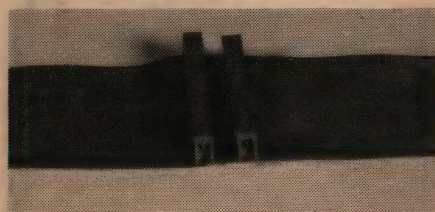
	1-99	100-Up
20CE-20S.....	3.65 + 32/Ft.....	Call
26CE-26S.....	4.70 + 42/Ft.....	Call
34CE-34S.....	5.45 + 55/Ft.....	Call
40CE-40S.....	5.60 + 60/Ft.....	Call
50CE-50S.....	7.80 + 88/Ft.....	Call



DIP Plug to DIP Plug

Price/Qty.

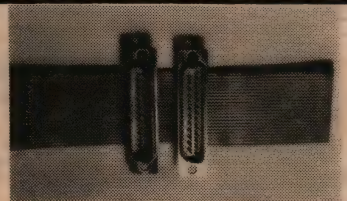
	1-99	100-Up
14D-14D.....	2.15 + 26/Ft...	Call
16D-16D.....	2.70 + 30/Ft...	Call
24D-24D.....	2.60 + 38/Ft...	Call
40D-40D.....	4.35 + 64/Ft...	Call



Socket to Socket

Price/Qty.

	1-99	100-Up
20S-20S.....	2.80 + 32/Ft.....	Call
26S-26S.....	3.55 + 40/Ft.....	Call
34S-34S.....	4.25 + 55/Ft.....	Call
40S-40S.....	4.60 + 64/Ft.....	Call
50S-50S.....	5.20 + 88/Ft.....	Call
60S-60S.....	6.20 + 105/Ft.....	Call



D - SUB to D - SUB

9M-9M.....	5.70 + .18/ft.....	Call	25M-25M.....	9.05 + .46/ft.....	Call
9M-9F.....	6.50 + .18/ft.....	Call	25M-25F.....	10.05 + .46/ft.....	Call
9F-9F.....	6.80 + .18/ft.....	Call	25F-25F.....	10.15 + .46/ft.....	Call
15M-15M.....	8.30 + .28/ft.....	Call	37M-37M.....	12.90 + .72/ft.....	Call
15M-15F.....	8.50 + .28/ft.....	Call	37M-37F.....	13.15 + .72/ft.....	Call
15F-15F.....	8.90 + .28/ft.....	Call	37F-37F.....	15.30 + .72/ft.....	Call



IBM Parallel Printer Cable

Full Shield

IBM-PC-6.....	14.95	12.90
---------------	-------	-------

IBM Misc. Cables

IBM-Hayes		
MODEM 6ft.....	14.50	12.65
IBM Keyboard		
EXT Cable 6ft.....	8.45	7.95
IBM Monochrome		
Monitor Cable.....	11.60	10.30

Standard RS-232

Male-Male 6ft.....	16.95	15.25
--------------------	-------	-------

"Y" Power Cable

YP-C.....	5.25	4.75
-----------	------	------

OVER 7 YEARS MANUFACTURING EXPERIENCE - OEM QUANTITIES - PLEASE CALL

IN CALIFORNIA
CALL (408)275-6664

1-800-423-2660

VISA - Master Card - Check - C.O.D.
Add \$2.00 Shipping Charges

\$25.00 Minimum Order

2040 Bering Dr.
San Jose, CA. 95131

OKTOBERFEST SALE-A-BRATION

500 Sheets of 15" Printer Paper * \$12 Shipped

* Limited Quantity — No Back Orders

PRINTERS

OKIDATA	
ML182P 120 cps	\$ 219
ML182 IBM Graphics Comp	219
ML182S 10" Carriage	259
ML192P, 160 cps	359
ML192 IBM Graphics Comp	359
ML192S, 160 cps	425
ML193P, 160 cps	499
ML193 IBM Graphics Comp	499
ML193S, 160 cps	569
ML84P, 200 cps	659
ML84 IBM	659
ML84S, 200 cps	775
Okimate 20	125

STAR MICRONICS

SG-10, 120 cps, 2K buffer	\$ 229
SG-15, 120 cps, 2K buffer	389
SD-10, 160 cps, 10" carriage	359
SD-15, 160 cps, Corr. Qual.	475
SB-10 Draft & NLQ 24 wire printhead	625

EPSON

LX80, 100 cps, 10" carriage	Call
FX80 +, 160 cps, 10" carriage	Us
RX100, 100 cps, 15" carriage	First
FX100 +, 160 cps, 15" carriage	For
LQ1500 Draft NLQ	Lowest
SQ2000, All New	Prices

* We Are An Authorized Dealer

COPAL

SC-1200, 120 cps FT & Graphics	\$ 215
SC-1200L, 120 cps w/NLQ	245
SC-1500, 180 cps FT & Graphics	295
SC-1500L/I, 180 cps NLQ w/IBM Char.	
Set	335
SC-5500L/I, 15" NLQ IBM Char. Set	475
Very Quiet — 1 Yr. Warranty	

DYNAX

DX15XL, 20 cps By Brother	\$ 375
---------------------------	--------

JUKI

6100, L.Q. 18 cps w/proportional spc.	\$ 359
6300 L.Q. 40 cps	695

TOSHIBA

P1340 P	\$ 575
P1340 S	575
P351 P, Faster than 1351	1125
P351 P/S, Faster and More Versatile	1145

PANASONIC

1091 w/Tractor, 120 cps, 1 yr. war.	\$ 255
1092, 10" carriage, 180 cps	375
1093, 15" carriage, 160 cps	535

HARD DISK DRIVES

MICRO-SCI

10 Meg w/cont. formatted for IBM	\$ 535
20 Meg w/cont. formatted for IBM	795

ALPHA OMEGA

10 Meg w/Controller Card	\$ 545
20 Meg w/Controller Card	749
30 Meg w/Controller Card	999
20 Meg for AT	565
33 Meg for AT	799

DISK DRIVES

TANDON

TM100-2 for IBM PC	\$ 85
--------------------	-------

MITSUBISHI

1/2 Ht. 360K	\$ 95
--------------	-------

TEAC

55B Double Sided 360K	\$ 89
Quad Density	159

Drives For Apple & Franklin

MICRO-SCI

A-2	\$ 149
A.5C for IIC w/cable	159
A.5 1/2 height for IIE	155
Controller Add	55

PRINTER ACCESSORIES

ORANGE MICRO

Grappler +	\$ 85
Buffered Grappler +, 16K exp. 64K	150

TOSHIBA

Bi-Directional Trac. 1351/351	\$ 149/155
Font Disk for Down loading P1351	50

MICROTEK

Dumpling GX (same as Grappler +)	\$ 69
Dumpling GX w/16K buffer	127
Dumpling GX w/32K buffer	137
Additional Buffering 16K	9

FOURTH DIMENSION

Par. Card & Cable for Apple	\$ 47
-----------------------------	-------

OKIDATA

Plug and Play for IBM	\$ 49
Tractor for 182 & 192	39

JUKI

Bi-Direct. Tractor for 6100/6300	\$ 115/125
Serial Interface	65

CABLES

IBM PC to Parallel Printer	\$ 14
Serial Cable	16
Centronics M/M or M/F	18

DISPLAY MONITORS

QUADRAM

Amber chrome IBM compatible	\$ 169
-----------------------------	--------

AMDEK

V300G	\$ 117
V300A	125
V310A for IBM PC	149
Color 300	235
Color 500 Color Composite	319
Color 600 RGB Hi-Res	429
Color 710 Super Hi-Res	545

TAXAN

IBM Green Monochrome #121	\$ 129
IBM Amber Monochrome #122	139
RGB IBM w/Cable #420	389
RGB Super Hi-Res. #440 Best Buy	499
RGB/Comp. Med. Res. #210	245

PRINCETON GRAPHICS

HX-12 for use with IBM PC	\$ 435
Max 12E Amber for IBM	159
SR 12 Super Hi-Res	575
Scan Doubler	185

QUIMAX

PX-4, RGB Hi-Res w/Gr. Text Mode	\$ 410
DM-14 Monochrome for IBM	150

SYSTEM SPECIALS!!

EXECUTIVE COMPAQ

- Compaq Desktop w/640K
- Two 360K Disk Drives
- 10 meg Hard Disk
- Tape Backup
- Taxan Green Monitor
- Epson FX 185 w/Cable

\$3795

COMPAQ STARTER

- Compaq Desk Top I
- 128K
- 1 Dbl/Dbl Disk Drive
- Taxan Amber #116

\$1850

EXECUTIVE IBM

- IBM AT w/512K
- 33 meg Hard Disk
- 1.2 meg Floppy
- Monochrome Monitor Card
- Parallel & Serial Ports
- Amdek V310A

\$4295

IBM STARTER

- IBM PC w/256K
- Two 360K Disk Drives
- Color Card • w/Printer Port
- Taxan Amber #116

\$1799

"THE COMPANY THAT DELIVERS"

IBM PC ACCESSORIES

IBM

IBM Dos 3.1	\$ 65
-------------	-------

PARADISE

Modular Graphics Card	\$ 265
Module A	75
Module B	189
5-Pak	175

64K MEMORY UPGRADE

64K (9 chips) 200ns & 150ns	\$8.00
-----------------------------	--------

PERSYST BOARD

Bob Hi-Res Display Adaptor	\$ 345
----------------------------	--------

QUADRAM

Quad Color 1 Board	\$ 179
Exp. Quadboard w/64K & Game Port	199
Quadlink 3000 Run Apple sft on IBM	329

APPLE & FRANKLIN ACCESSORIES

ACCESSORIES

Kensington System Saver	\$ 69
Masterpiece Control Unit	99

MICROTEK

Serial Interface	\$ 75
------------------	-------

MICROMAX

Viewmax 128K extended 80 col. card	
for Apple IIE w/64K	\$ 119
80 col. card for Apple II & II +	139

VUTEK (2 yr. war.)

Vutek - CPS Board, RGB & Composite w/Par. & Ser. Ports, 2 Yr. War.	\$ 189
Color Card (Herc. comp.) w/Para.	159
Monographic Card (Herc. comp.)	275

AST RESEARCH

Six Pak + w/64K & Sidekick	\$ 235
Six Pak + w/384K & Sidekick	265
Game Port	49

KEYTRONICS

KB5151	\$ 175
--------	--------

MICROTEK

Monochrome Text Par. & Ser.	\$ 185
Color Graphics Card	165

TECHMAR

Graphics Master	\$ 449
256K Memory Upgrade	99

ADVANCED LOGIC SYSTEMS

Z Engine 2.2	\$ 115
--------------	--------

APPLE

Super Serial Card	\$ 139
-------------------	--------

ASTAR

RF Modulator	\$ 14
--------------	-------

MICRO-SCI

64K, 80 Col. Card	\$ 85
-------------------	-------

We Stock What We Sell!!

IF YOU SEE IT ADVERTISED FOR LESS, CALL
COMPUTER CONNECTION FIRST FOR LOWEST QUOTE!

MAIL ORDER:

17121 S. Central Avenue, Unit L
Carson, California 90746



NO SURCHARGE FOR CREDIT CARDS

We accept VISA, MasterCard, COD (w/deposit), Certified Checks or Wire Transfers. Minimum Shipping Charge \$4.00. Some items subject to back order. California Res. add 6 1/2% Sales Tax. All returns are subject to a 15% restocking charge and must be authorized by store manager within 10 days. Prices subject to change without notice. This Ad supersedes all others.

COMPUTER
CONNECTION
TOLL FREE
ORDER
LINE

PERSONAL SYSTEMS

APPLE

Professional Sys. incl: Apple IIE w/128K & 80 col., tilt mon., duo disk w/con't kit	\$1339
Apple IIc Lightweight Portable	Call

IBM

IBM PC Bare w/cont. & keyboard	\$1345
IBM PC 64K, 1 Drive	1460
IBM PC, 2 Drives w/256K	1535
IBM XT, 10 Meg., 360K Dr. w/256K	2399
IBM XT Bare w/256K & IBM Floppy	1899

Call About All "AT" Systems

SANYO

MBC 550-2 w/1, 320K Drive & sftwr.	\$ 750
MBC 555-2 w/2, 320K Drives & more software	977
775 Portable	1795
Serial Port for Sanyo	65

COMPAQ

256K, w/2 - 320K Drives	\$1969
Desk Top Model 1	1720
Desk Top Model 2	1975
Desk Top Model 3	Call
Desk Top Model 4	Call

WYSE

1100-1 incl. 256K w/two 360K Drives, 1 par. & 2 ser. ports	\$1399
1100-2 incl. 10 meg, 1 floppy, 256K, 1 par. & 2 ser. ports	2599
* Wyse Monitors & Exp. Chasis Available	

SOFTWARE

LOTUS DEVELOPMENT CORP.

Lotus 1-2-3	\$ 294
Symphony	420

ASHTON TATE

D Base II	\$ 299
D Base III	389

PRINTER SWITCH BOX

EXPONENT

Centronics Two Switch	\$ 84
Centronics Four Switch	110
Serial Two Switch	55
Serial Four Switch	79

MODEMS

ANCHOR

Mark XII	\$ 210
Volksmodem XII	179
Express 1200	265

HAYES MICRO

300 Baud Smart Modem	\$ 149
1200 Baud Smart Modem	389
1200 B for IBM PC w/SM II	375
2400 Baud Modem	645
Micro Modem IIE	149
Chronograph	189
300 For Apple IIC w/Sftwr	Call

DISKETTES

PC DISKETTES

Sgl./Dbl. (Box of 10)	\$ 13
Dbl./Dbl. (Box of 10)	15

COMPUTER CONNECTION

Dbl./Dbl. (Box of 10)	\$ 16
Sgl./Dbl. w/Disk Container (10)	15
Dbl./Dbl. w/Disk Container	17
Bulk 50 & Up — Dbl./Dbl.	1.35 ea.

ORDER LINE (800) 732-0304

(Outside California)

[213] 635-2809

(Inside California)

Mon.-Fri. 7 a.m. to 6 p.m.

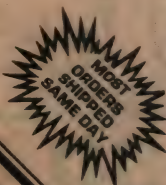
Saturday 11 a.m. to 3 p.m.

CUSTOMER SERVICE:

[213] 635-5065

Mon.-Fri. 9 a.m. to 3 p.m.

COMPUTER
CONNECTION



Panasonic Printer Sale

SAVE WITH CONFIDENCE - CALL MIDWEST MICRO

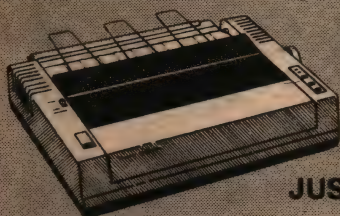


NO TAX CHARGED TO RESIDENTS OUTSIDE OHIO
SAME DAY SHIPPING ON ALL ITEMS IN STOCK
TECHNICAL SUPPORT

PRICE GUARANTEE

We at Midwest Micro guarantee that we can save you up to 49% or more on your purchase of new fully warranted equipment and supplies. And we will still give you friendly, courteous service. Call today and Save With Confidence!

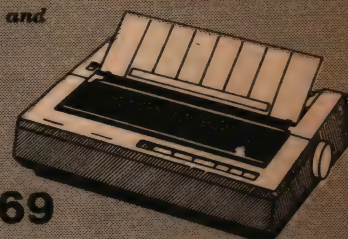
COMPANY PURCHASE ORDERS WELCOMED
FAST RELIABLE SERVICE
ONE CALL SHOPPING TOLL FREE



Now get versatile and reliable performance at an affordable price with...

Panasonic

Get versatility, dependability, and correspondence quality all in one fantastic printer with...



Panasonic
JUST \$199 KX-P1090

Panasonic
KX-P1091 Just \$269

The Panasonic Matrix Printer KX-P1090 utilizes the latest technologies to supply quality copy and durability at a quick 96 CPS. State-Of-The-Art engineering and light-weight design make the KX-P1090 ideal for personal and small business use. With bi-directional logic seeking printing and adjustable tractor feed and friction feed, the KX-P1090 is eager to print everything from address labels to 3-part invoices. Change ribbons in a snap with the endless compact cartridge-type ribbon designed for long life and easy replacement. High resolution dot-addressable graphics and razor-sharp character printing that set high standards in variance and quality make the KX-P1090 today's most exciting news in matrix printers.

With the combined features of multiple mode printing and a draft mode speed of 120 CPS, the Panasonic KX-P1091 is designed for demanding small business and personal computer users. The KX-P1091 operates bi-directionally and includes a 1K buffer that's expandable to 4K letting you continue your work without waiting on the printer. Other added features include friction & tractor feed and high resolution dot-addressable graphics for superb charts and graphs. Easy to interface and is command code compatible with most popular small business and personal computers. In all, the KX-P1091 provides razor sharp printing, economy and the Panasonic promise of quality and reliability.

Get high speed multiple mode printing with...

Panasonic KX-P1092 ONLY \$389 LIST \$599

With the combined features of multiple mode printing and a draft mode speed of 180 CPS, the Panasonic KX-P1092 is designed for demanding small business and personal computer users. Multiple mode printing gives you access to near-letter-quality and proportional printing. By combining various modes, 74 different types of characters can be generated. A switch indicator on the printer body makes mode selection easy. Automatic reverse paper feed and a one inch paper cut mechanism add convenience. And, because it's command code compatible, it can be used with popular printer software. In all, this KX-P1092 provides razor sharp printing, economy and Panasonic's promise of quality and reliability.

Get a multiple mode 15" high speed printer with...

Panasonic KX-P1093 ONLY \$489 LIST \$899

The versatile KX-P1093 is compatible with most popular small business and personal computers. With up to 15" paper capacity, the KX-P1093 offers adjustable tractor as well as friction feed. Continuous paper can be fed from the rear and bottom of the printer. The KX-P1093 is command code compatible with most popular small business and personal computers.



COMPLETE IBM XT® COMPATIBLE BUSINESS MANAGEMENT SYSTEM

LIST \$3295
ONLY \$1399
BUY 2 AT \$1329 EACH

SAVE 57%

14 DAY MONEY BACK GUARANTEE



FREE GIFT!
Buy any popular printer from Midwest at these special discount prices and we will include an attractive LCD Quartz COMPUTER CLOCK absolutely FREE!
CALL TODAY!

- XT Compatible computer with 256K RAM
- 8 full length expansion slots
- 135 watt power supply with four cables
- IBM style keyboard with lighted NUM & Caps lock
- Parallel Printer Port
- Two 360K Floppy Disk Drives and Controller
- Monochrome Monitor & Graphics Card
- Box of 10 DS/DD Diskettes and an attractive smoked plexiglass Diskette Box.

- DOS 2.11
- Software Library
- **NewBase** Data Management Software (Holds up to 32,000 records/file.)
- **PC-Write** Word Processing Software
- Electronic Spread Sheet Program for business management
- 6 outlet power management unit with surge protection and on/off switch

Add Even More Power!!

- Substitute 20 Mb for 10 Mb Hard Drive Just \$299
- See details in full-page Computer Shopper ad.

Add 384K RAM (for total of 640K) plus a clock/calendar added Parallel + Serial Port, Game Port attachment, RAM disk and print spooling software just \$199.

High Capacity System

with 10 Mb Hard Disk
\$1799

Buy 2 at \$1749 each.

© IBM XT IS REGISTERED TRADEMARK OF INTERNATIONAL BUSINESS MACHINES CORP.

GIGANTIC DISKETTE SALE

Get big savings and high reliability backed by a lifetime guarantee with...



MidWest Micro's
Reliant
DISKETTES

Low as 68¢ each

Tough polyvinyl jacket protects the diskette from damage under repeated use and fluctuating temperatures. Edges are heat-sealed to improve rigidity, keep out dust and pollutants. Improved reinforced hub makes the center hold stay perfect longer, also reduces change of lost data due to diskette/drive misalignment. **RELIANT** disks can be stored and used in a variety of changing conditions without the worry of expansion, contraction and warping. Unique oxide coating process insures a consistent playback of recorded information. Final burnishing and polishing of the oxide coating provides an ultra smooth surface for reliability. Comes packed in boxes of 10 with labels and write protect tabs.

	SS/SD	DS/DD
50+	89¢	99¢ EACH
100+	79¢	89¢
500+	74¢	84¢
1000+	68¢	78¢

PRICES ARE BULK FOR BOXES OF 10 ADD 10¢ PER DISKETTE



CALL TOLL FREE FOR INFORMATION OR ORDER

(800) 423-8215

IN OHIO, CALL - (800) 321-7731

HOT LINE: 513-663-4992

(FOR TECHNICAL ASSISTANCE OR INFORMATION ON YOUR ORDER)

MONDAY - FRIDAY

9 AM - 6 PM (EST)

SATURDAY 10 AM - 4 PM

PRICES SUBJECT TO CHANGE,
AVAILABILITY AND TYPE ERRORS



MidWest Micro-Peripherals

135 S. Springfield St., Saint Paris, Ohio 43072

All equipment shipped factory fresh with manufacturers warranty

HIGH TECHNOLOGY — NOT HIGH PRICES



BUSINESS TELEPHONE SYSTEMS

MidWest Micro now offers you a sophisticated small Business Telephone System that's simple with...

MidWest 510 KT

ONLY
\$1799
With Money-Back Guarantee

Full-Featured Key Telephone System

Key System Price Includes:

- ★ Complete, ready to install, full-featured, key service unit.
- ★ 4 full-featured key telephones. (Additional phones available.)

MW 510 KT

When we found out that we could offer you a complete state-of-the-art electronic telephone system for only \$1799 we were ecstatic! But we did have a few serious questions. Who is going to install this for our customers? Is it going to be reliable? Who will repair it?

Well, the answers were quite exciting. The system is so well engineered that the average handyman can install, test and repair it simply and easily in a couple of hours. The 510 KT system includes self-diagnostics in the uncommon event that the system needs repair. And repairs are a simple matter of board swapping.

Features are easily programmed by a single key telephone set. You don't have to be a computer wizard. The user gets sensible, easy to use features and has the flexibility to change the data-base station, and to change restrictions without rewiring or calling for service.

When you consider the people behind the system, you'll be even more interested in the 510 KT. The researchers and engineers combine over fifty years experience in the telecommunications industry from the most respected labs in North America: Bell Lab, Bell Canada, Northern Telecom and CDC. The manufacturer build PABX and PCM systems, and other high-tech products. Perhaps best known among them is the monitor for the IBM PC (for which they earned IBM's Zero Defect Award). The 510 KT is backed by a one year warranty on all equipment manufacturer defects. Emergency replacements are provided, but there's not much chance you'll ever need one.

MW 510 KT was designed for small businesses. There's not another telephone system on the market that can do as much, as simply for less money. There are more complex systems, but chances are they have more gadgets than a small business would ever use, and they're a lot more expensive. There are less expensive and more limited systems that will cost more in the long run with repairs, installation charges and expansion. The 510 KT is quickly installed, and it has the flexibility to make changes that would require service calls with other systems. The modular system is easy to expand, so it can grow with small businesses. Look into the 510 KT, it answers the call of small business.

FEATURES

SYSTEM
-system diagnostic indicator
-data base change by a single key set
-flexible extension number assignment
-power failure backup
-power failure transfer
-volume control

CENTRAL OFFICE CALLING
-multiline pick up
-private line
-last number radial
-abbreviated dialing
-toll restriction
-night service
-switch-hook flash
-music on hold
-on hook dialing

INTERCOM CALLING
-call forward
-call pickup
-call waiting
-audible signal indicating called party busy
-station paging
-talkback to paging station
-two intercom links

CENTRAL OFFICE AND INTERCOM CALLING
-line status indication
-distinctive ringing
-hold
-exclusive hold
-i-hold
-hold recall
-privacy
-monitoring
-do not disturb
-three-way conferencing

OPTIONAL FEATURES
-zone paging via external speakers
-speaker phone
-hand free talk back
-SMDR time/date/called/duration recording (optional)
-call message display
-time of day display
-stop watch for call time
-directory of abbreviated dialing number display
-feature operation display
-dialed number display
-canned message content display
-adjunct converting POT set into 510 KT compatible set

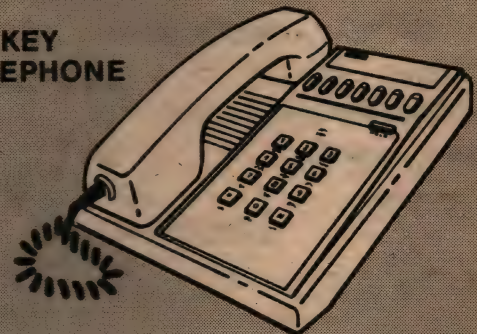
SPECIFICATIONS
Central office line capacity: 5
Intercom link: 2
Key sets capacity: 10
Input power: AC 110V 50/60 Hz
Power consumption: 40 watt
Cable: 6-wire, Star Connection
Dimension & Wt.: 17" x 12.5" x 5.5"
22 lbs.
Operating temp: 32-104 degrees F

Dealers -

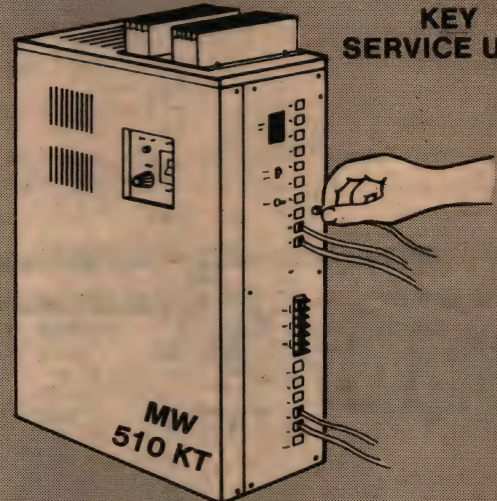
This system is an ideal item to set up in your store to use and demonstrate. It requires practically no support and fits the needs of 80% of the 11 million small to medium size businesses in the U.S. **CALL TODAY FOR DEALER DISCOUNTS UP TO 30% OFF!** Your margins can be 50 points or more.

ATTENTION
DEALERS!

KEY TELEPHONE



KEY SERVICE UNIT



MidWest 206 KT

ONLY
\$899

Includes:

- Key Service Unit
- 3 Full-Featured Key Telephones

MW 206 KT

The MW 206 KT system is a two-line, six extension telephone system which uses the same keyset as MW 510 KT; therefore, the features outlined in the attached literature are identical in both systems. The only difference between the two systems is their capacity (and KSU); this is a very attractive benefit to small, growing companies who do not need a larger system now but expect to expand in the near future. When the time comes to expand to the 510, all that is required is a KSU change. Much less expensive than purchasing a completely new system!

SYSTEM

System diagnostic indicator
Data base change by a single key set
Flexible extension number assignment
Power Failure memory backup
Power failure transfer
Volume control

INTERCOM CALLING

Call forward
Call pickup
Call waiting
Audible signal indicating called party busy
ICM tone plant
Station paging
ICM HF talk back

CENTRAL OFFICE CALLING

Multi-line pick up
Private line
10 per station
30 per system
Toll restriction
Night service
Switch-hook flash
Music on hold
On-hook dialing
External music on hold
Direct call

SPECIFICATIONS

Central office line capacity: 2
Intercom link: 1
Key sets capacity: 6
Input power: AC115V 50/60 Hz
Power consumption: 25 watt
Cable: 6-wire, Star Connection
Dimensions & Weight: 387 x 292 x 132 (mm), 5.6 lbs.
Operating temp: 32-104 degrees F

MONEY BACK GUARANTEE

We're so sure you'll be delighted with our phone systems that we offer this guarantee. If, within 15 days, you are not completely satisfied with your telephone system from MidWest Micro, you simply return it in like-new condition with all packaging and materials and receive a full refund of your purchase price.



CALL TOLL FREE FOR INFORMATION OR ORDER

(800) 423-8215

IN OHIO, CALL - (800) 321-7731

HOT LINE: 513-663-4992

(FOR TECHNICAL ASSISTANCE OR INFORMATION ON YOUR ORDER)

MONDAY - FRIDAY
9 AM - 6 PM (EST)
SATURDAY 10 AM - 4 PM
PRICES SUBJECT TO CHANGE,
AVAILABILITY AND TYPE ERRORS

MidWest Micro-Peripherals

135 S. Springfield St., Saint Paris, Ohio 43072

All equipment shipped factory fresh with manufacturers warranty

HIGH TECHNOLOGY — NOT HIGH PRICES



MAGNUM

800

ORDERS ONLY

544-4354

5965 PEACHTREE CORNERS E., B-2, NORCROSS, GA 30071
(404) 441-3112 FOR INFORMATION (404) 446-7174

IBM PC W/MONITOR	2195
256K, 2-360K Drives, Monochrome Display & Printer Adapter, Taxan 121 Monochrome Monitor	
IBM PC W/10 MB HARD DRIVE	2695
256K, 2-360K Drives, 10 MB Hard Disk Drive Monochrome Display & Printer Adapter, Taxan 121 Monochrome Monitor	
IBM PC/AT W/MONITOR	3695
256K, 1.2 MB Floppy Drive, Monochrome Display & Printer Adapter, Taxan 121 Monochrome Monitor	
IBM PC/AT W/20 MB HARD DRIVE	4995
256K, 1.2 MB Floppy Drive, 20 MB Hard Disk Drive Monochrome Display & Printer Adapter, Taxan 121 Monochrome Monitor	
IBM PC-XT	
256K 1-360K Floppy Drive	CALL
256K 2-360K Floppy Drive	CALL
256K 1-360K Floppy & 10 MB Hard Drive	CALL
256K 1-360K Floppy & 20 MB Hard Drive	CALL
256K 1-360K Floppy, 20 MB Drive, 60 MB Tape	CALL
256K 1-360K Floppy, 30 MB Drive, 60 MB Tape	CALL

COMPUTERS



AT&T 6300 PC	SAVE
ITT EXTRA	SAVE
COMPAQ DESKPRO	SAVE
COMPAQ PORTABLE	CALL
COMPAQ 286 DESKPRO	NEW
COMPAQ 286 PORTABLE	NEW
CANON A200	LOW COST IBM ALTERNATIVE
256K, 2-360K Floppy Drives, Parallel & Serial Ports, Monochrome Monitor, MS-DOS 2.11 & GW Basic	
10MB & 20MB CANON SYSTEMS	CALL
ERICSSON PORTABLE PC	NEW
256K, 1-360K Floppy & Plasma Screen	2795
256K, 1-360K Floppy, Plasma Screen & Ergo Ram Disk	3695
512K, 1-360K Floppy, Plasma Screen & Ergo Ram Disk	4295

FDA-5200B/PC \$84.95

HALF HEIGHT, DOUBLE SIDE, DOUBLE DENSITY, 500KB FLOPPY DISK DRIVE. COMES WITH A STACKING BRACKET EXCLUSIVELY DESIGNED FOR THE IBM PC. COMPLETE WITH INSTALLATION MANUAL.

FULL HEIGHT FLOPPY DRIVES	EXTERNAL SUBSYSTEMS
CDC 9409 (FULL HEIGHT)	119
TANDON TM-100-2 (FULL HEIGHT)	119
HALF HEIGHT FLOPPY DRIVES	
SHUGART SA-455 - 48TPI	109
TEAC FD55-B (HALF HEIGHT)	CALL
MATSUSHITA JA5551-2 (HALF HEIGHT)	CALL
SVC 1.2 MB (FOR AT) - 96TPI	165
360K (FOR AT) - 48TPI	CALL
SHUGART SA-465 - 96TPI	119
KODAK 3.3 MB W/BACKUP SOFTWARE	662
INTERNAL HARD DRIVES FOR PC	
ALPHA OMEGA	
10 MB INTERNAL DRIVE	699
20 MB INTERNAL DRIVE	CALL
30 MB INTERNAL DRIVE	1499
CMS 10 & 20 MB FOR PC	CALL
EVEREX 10 & 20 MB INTERNAL	CALL
I²INTERFACE	
10 & 20 MB INTERNAL	CALL
PEACHTREE TECHNOLOGIES	
10 MB INTERNAL HALF HEIGHT	699
20 MB INTERNAL HALF HEIGHT	1025
30 MB INTERNAL	CALL
QUADRAM QUADDISK (6 MB REMOVABLE)	1725
SVC 10 MB INTERNAL FOR PC	629
20 MB INTERNAL FOR PC	849
36 MB INTERNAL FOR PC	CALL
TEAMMATE 10 - 30 MB FOR PC	FROM 699
INTERNAL HARD DRIVES FOR PC/AT	
ALPHA OMEGA 20 MB FOR AT	895
30 MB FOR AT	CALL
CMS 20 & 40 MB FOR AT	CALL
CORE AT-20 - AT-72	CALL
EVEREX	
20 MB FOR AT	CALL
I²INTERFACE	
20 - 117 AT ENHANCEMENT	FROM 895
PEACHTREE TECHNOLOGIES	
20 - 30 MB FOR AT	FROM 895
SVC 20 MB - 119 MB FOR AT	FROM 795
ALLOY	
PC-STOR (36 - 170 MB W/CARTRIDGE)	CALL
PC-QICSTOR (36 - 170 MB W/CARTRIDGE)	CALL
QICSTOR PLUS (36 - 128 MB W/CARTRIDGE)	CALL
AST - COLOSSUS SUBSYSTEM	6995
74 MB DISK SUBSYSTEM WITH 60 MB STREAMING TAPE CARTRIDGE BACKUP	
EVEREX	
EXPANSION SYSTEM	CALL
10 - 20 MB EXPANSION SYSTEM	CALL
10 MB HARD DISK, 60 MB BACKUP & EXPANSION SYSTEM	CALL
20 MB HARD DISK, 60 MB BACKUP & EXPANSION SYSTEM	CALL
60 MB TAPE BACKUP & EXPANSION SYSTEM	CALL
IOmega BERNOULLI PLUS (20 MB)	2550
KAMERMAN LABS	
MASTERFLIGHT SYSTEM	
10 MB W/10 MB TAPE	CALL
20 MB W/60 MB TAPE	CALL
TALLGRASS	
TG 5025 25 MB W/60 MB TAPE	CALL
TG 6135 35 MB W/60 MB TAPE	CALL
TG 6050 50 MB W/60 MB TAPE	CALL
TG 6180 80 MB W/60 MB TAPE	CALL
TECMAR QIC-60	CALL
TAPE BACK-UP W/CARTRIDGE AT HARD DISK W/TAPE BACK-UP	
TAPE CARTRIDGE SYSTEMS	
ALLOY PC-QICTAPE (51 MB)	CALL
ALPHA OMEGA 10 MB INTERNAL	CALL
CMS 10 MB - 60 MB	CALL
INTERNAL & EXTERNAL	CALL
EVEREX 60 MB INT. & EXT. (W & W/O POWER SUPPLY)	CALL
INTERDYNE 10 MB INTERNAL	CALL
PEACHTREE TECHNOLOGIES INTERNAL	CALL
TALLGRASS EXTERNAL TAPE	CALL

CARDS

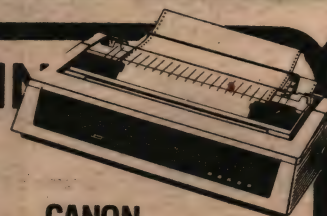
APSTEK HANDI-1 PLUS (OK)	179
AST ADVANTAGE	399
GRAPH PACK (W/MEMORY)	CALL
MONOGRAPH PLUS	CALL
PREVIEW	279
SIX PACK PLUS (W/SIDEKICK)	259
5251-II (W/ETU FILE TRANSFER)	845
CSS SUPERVISION	SAVE
DCA IRMA (3278 EMULATOR)	795
IRMAX (GRAPHICS)	NEW
IRMA LINE (PC TO MAINFRAME)	CALL
IRMA LINK (WINDOWS)	CALL
OTHER PRODUCTS	CALL FOR LATEST PRICE
EVEREX THE EDGE	CALL
EVERGRAPHICS	CALL
GRAPHICS EDGE	319
GRAPHICS PACER	CALL
MAGIC CARD (OK, W/SOFTWARE)	CALL
FORTE DATA PC3278 EMULATOR	CALL
HERCULES GRAPHICS CARD	299
COLOR CARD	159
ORCHID PC BLOSSOM (OK)	217
PC TURBO (AT SPEED)	SAVE
PARADISE MODULAR GRAPHICS CARD	299
MULTI DISPLAY CARD	199
PROFIT SYSTEMS MULTIGRAPH	CALL
PERSYST COLOR CARD	
(W/PARALLEL PORT)	147
COLOR COMBO (OK)	CALL
MONO CARD	CALL
MONOCHROME COMBO (OK)	CALL
TIME SPECTRUM	253

PC-JR ENHANCEMENTS

RACORE DRIVE 2 ENHANCEMENT	449
2ND DRIVE, MEMORY EXPANSION SLOT, PARALLEL PORT, AND CLOCK/CALENDAR. ALLOWS YOUR PCjr TO RUN IBM-PC SOFTWARE	
MEMORY EXPANSION	219
10 MB ENHANCEMENT	SAVE
KEYBOARD ADAPTER CABLE	SAVE
AST JR COMBO	CALL
TECMAR JR CAPTAIN (128K)	325
JR WAVE (64K)	CALL
JR 2ND MATE	CALL

QUADRAM EXPANDED QUADBOARD	208
GOLD QUADBOARD (OK)	419
SILVER QUADBOARD (OK)	229
LIBERTY (64K)	299
QUADMEG-AT	CALL
QUAD 2MEG-PC	CALL
QUADSPRINT	SAVE
QUADVUE	249
QUADGRAPH	CALL
QUADPORT-AT	CALL
STB GRAPHICS PLUS II	CALL
GRAPHICS PLUS III	CALL
MONO PLUS	179
GRANDE BYTE (AT-128K)	CALL
CHAUFFER	249
SUPER RES 400	CALL
RIO PLUS II (64K)	CALL
SUPER RIO	CALL
TECMAR CAPTAIN (OK)	195
GRAPHICS MASTER	459
GRAPHICS TENDER	CALL
MAESTRO (AT)	CALL
TSENG LABS ULTRA PAK	CALL
ULTRA PAK-S	CALL
VUTEK COLOR (W/PARALLEL PORT)	139
MONOCHROME (W/PARALLEL PORT)	135

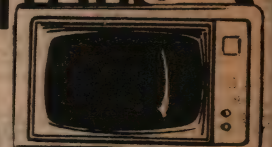
PRINTERS



CANON
BLOWS EPSON AWAY
CALL FOR OUR BEST PRICE ON
A-40, F-60, BJ-80
PW-1080A, PW-1156A
FULL YEAR WARRANTY

EPSON	CALL
OKIDATA ALL MODELS	SAVE
SMITH CORONA D-100	199
D-200	299
D-300	419
STAR-MICRONICS SG-10	243
SG-15	407
TOSHIBA P351	1225
P1340	579

MONITORS



AMDEK 310
(IBM PLUG IN-AMBER) 169
KIMTRON CALL
PRINCETON GRAPHICS
HX-12 469
MAX-12E 169
TAXAN ALL MODELS SAVE

MODEMS

HAYES SMART MODEM 300/1200	199/399
1200B/1200	349/379
2400 BAUD MODEM	CALL
TRANSET 1000	CALL

DISKETTES



BASF

Plastic Box - Warranted Forever

\$1.20 \$1.75

BASF 5 1/4" SS DD (Each-lots of 10)	1.20	MAXELL 5 1/4" SS DD (Each-lots of 10)	1.70
5 1/4" DS DD (Each-lots of 10)	1.75	5 1/4" DS DD (Each-lots of 10)	2.25
5 1/4" DS DD (Bulk-lots of 10)	1.49	5 1/4" DS IBM-AT (Each-lots of 10)	4.90
5 1/4" DS HD IBM-AT (Each-lots of 10)	4.35	VERBATIM 5 1/4" SS DD (Each-lots of 10)	1.70
3 1/2" DISKETTES	NEW LOW PRICE	5 1/4" DS DD (Each-lots of 10)	2.25

CHIPS \$10

QUADRAM MICROFAZER FROM 136

SOFTWARE

COPY II PC	35
D-BASE III	399
FRAMEWORK	399
LOTUS 1-2-3	309
MULTIMATE	249
SYMPHONY	475
ENABLE	CALL

PRESSURE-SENSITIVE, SELF-ADHESIVE, CONTINUOUS, PIN-FEED

LABELS

CLOSED FOR VACATION DEC. 20th THRU JAN. 1st

PRICE EXAMPLE:

3 1/2" X 15/16"
ONE, TWO,
THREE, OR
FOUR WIDE

\$192
PER
THOUSAND
LABELS

MINIMUM ORDER: \$20.00

CALL FOR FREE CATALOG

COMPUTER LABEL CO.
(Pacific Time Zone)

TOLL-FREE NUMBERS

(California)

1 (800) 331-4223

(Continental U.S.A.)

1 (800) 332-4223

John J. Meshna Jr., Inc.

19 Allerton Street • Lynn, Ma. 01904 • Tel. (617) 595-2275

5 1/4" HARD DRIVE CONTROLLER CARD

Finally, affordable, intelligent disc drive controllers are available at low, low surplus prices. The OMTI 20C controller boards we offer are unused, late style, surplus from a now defunct system house. OMTI is a division of Scientific Micro Systems. These boards will handle up to (2) 5 1/4 inch Winchester type hard drives that utilize a standard 34 pin SASI interface. Perfect for using with the above Seagate ST 506 drive, or other hard drives from 5 megabytes of storage on up. The controllers have buffered slewseek modes, overlapped seeks, auto seek & verify, extensive fault detection, auto head & cylinder switching, full sector buffering, 256/512 bytes/sector, 33 or 18 sectors/track (jumper selectable), programmable disc parameters and much more. The board runs on +5 vdc & +12 vdc. We supply users manual & pinout data. Guaranteed O. K. Shpg. wt. 3 lb. OMTI 20 C \$150.00 each 2/\$275.00 Qty. pricing available.



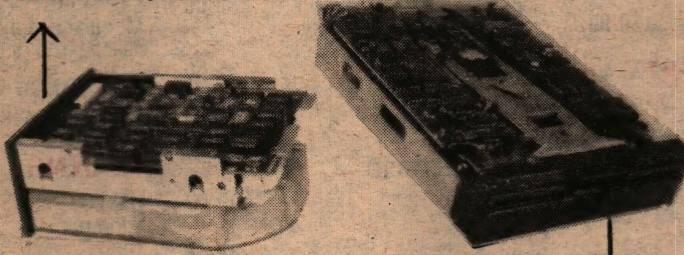
COMMODORE CASSETTE DECK



This Commodore cassette deck (model C2N) is a device for storing and recalling computer programs on ordinary cassette tapes. It can be used for saving programs you have written and want to recall for later use. It can also be used to read pre-recorded programs that you have purchased. The "Datassette" (tm) is supplied with a cord which connects to the computer. This cord provides the power link and the communications link between both units. This Datassette was designed for use on all Commodore computers: VIC, CBM, PET and the 64. The built-in tape counter allow you to easily find a particular program. These are factory overruns, not rejects. Each one is factory boxed with easy to understand instructions. This should be a fast seller. Shpg. Wt. 3 Lbs. SPL-480-37 \$30.00 2/\$55.00

SEAGATE TECHNOLOGY ST 506 5 1/4" HARD DRIVES

The Seagate Technology ST 506 hard disc drive utilizes proven Winchester technology for reliable storage of up to 5 megabytes of formatted data. Some features of this very popular drive are: 5 megabit/sec. data transfer rate, simple SASI floppy like interface, high speed band actuator & stepper head positioning, requires only +5 & +12 vdc, and same physical size and mounting parameters as a mini-floppy drive. This Shugart compatible drive is the same as used on many home personal computers. Each drive is checked out O. K. prior to shipping. Comes with data. They will run perfectly with the above OMTI controller card. Only a few on hand, so order early. Shpg. wt. 8 lb. ST-506 \$175.00



1/2 Height 1 Megabyte 5 1/4" Disc Drives

Here we go with another blockbuster buy on disc drives which should make the competition's head spin. We are offering brand new, Mitsubishi no. M 4853, 1/2 height, 1 megabyte, mini-floppy disc drives. These drives are beautiful! They are fully Shugart 34 pin compatible. All are double sided, double density, 80 track per side units. Each runs on +5 vdc, .5 amps & +12 vdc, .7 amps. Just the drives to use with your Radio Shack TRS series computers, Color Computers, IBM, Sanyo, Heath, Xerox, or other Shugart compatible systems. Each order comes with data and schematics on the drives. Shpg. wt. 4 lb. \$175.00 2/\$325.00 5/\$725.00

USER PROGRAMMABLE KEYBOARDS



A fantastic find and a super buy for the computer hobbyist. Brand new, user programmable keyboards made by Keytronics Corp. They are user programmable because the onboard encoding generator outputs hex codes to the user supplied 2716 or equivalent EPROM. The EPROM can be programmed by the user to virtually any encoding scheme: USASCII, BAU DOT, EBCDIC or others just by "burning" the EPROM to the particular specification. The keyboard is especially well constructed. It is laid out very conveniently in an ASCII format with full upper and lower case characters, numerics, control codes, electronic shift lock w/ LED indicator, and scratch pad which incorporates 5 way cursor control. Absolutely beautiful. Each one comes with schematic and data. These will be a fast seller. so order early. Shpg. wt. 4 lb. KYBD-7 \$46.00

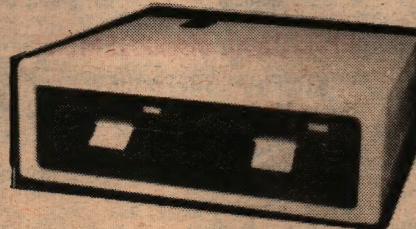
2716 EPROM's for above keyboard

These 2716 EPROM's run on a single 5 vdc power supply. They are "pulls" from little-used equipment and have been erased and checked OK. We got a super deal on these, which means YOU get a super deal on these! Each one with data. Shpg. Wt. 1/4 Lb. SP-328 A-35

Single 5 V 2716 EPROM, unprogrammed, for above \$2.00

Single 5 V 2716 EPROM, programmed for ASCII, \$6.00

DUAL FLOPPY DISC DRIVES



BRAND NEW, dual floppy disc drives made for Digital Equipment Corp. (DEC model no. RX 180 AB). This beautiful piece of computer hardware consists of 2 Shugart compatible TEAC 40 track, single side, double density, 5 1/4", mini floppy disc drives brand new in the case with their own regulated, switching power supply, fan, & on/off switch. Each unit also comes with a line cord & documentation. These were made for DEC, but are also compatible with IBM, TRS 80 models I & II (also compatible w/ models III & IV when used w/ EL DOS or DOS Plus), Color Computer & other Shugart compatible interfaces. Naturally you supply the cables & disc controller card to suit your particular system. The RX 180 runs on 115/230 vac 50/60 Hz., switch selectable. Each system comes in the original factory box & are guaranteed functional. A Blockbuster of a buy!!! Shpg. wt. 20 lb. Stock no. RX 180 AB \$250.00 Modified to run on TI 99/4A personal computer system \$285.00 Cable for TRS 80 Models I, II, or TI 99/4A also available 15.00

Phone Orders accepted on MC, VISA, or American Express cards. Please call (617)-595-2275 Monday thru Friday 8 AM-4:30 PM. Send your order payable by charge card, check or money order to John J. Meshna Jr., Inc. P. O. Box 62 E. Lynn, Ma. 01904. No COD's.

Free 72 page catalogue w/ each order. All others \$1.00 1st class.

Surplus Computer and Electronic Materials

ADVERTISERS INDEX

A B Computers	239
ABC Data Products	247
ABC Electronics	209
Adept Cable & Supply, Inc.	268
Advanced Computer Product, Inc.	33
Advanced Logic Research	72
Afton Computer Inc.	46
Altex Electronics	118 & 119
American Computer & Peripherals, Inc.	240 & 241
American Digital Discount Assoc.	187
American Semiconductor	237
Arlington Computer Products	50 & 51
Atlantic Computer Products	191
AVATAR Systems	87
B.G. Micro	47, 48 & 49
B.T.E., Inc.	117
Bulldog Computer Products	18 & 19
C J Computers Corp.	248 & 249
C.O.M.B.	275
CSS Lab, Inc.	193
Communications Electronics	114 & 115
Compuclassics	274
Computer Connection	269
Computer Mail Order	44
Computer Parts Galore	194 & 195
Computer Products & Peripherals Unlimited	213
Computer Products United	208
Computer Shopper Mart	212, 214 & 216
Computer Technologies International	242
Computer Warehouse	9
Conroy-LaPointe	24 & 25
d & d Discount Computers	133
Disk World	42, 137 & 256
Diskette Connection	264, 265 & 266
East, Inc.	41
East Coast Software	123, 124, 125, 126, 127, 128 & 129
Electrified Discounters	91
Electronic Parts Outlet	153
EMCO	21
Emerald Components International	158 & 159
Epic Sales	197
FCG Information Systems	78
Flamingo Micro	22
Floppy Disk Services	276
G & L	70
Gemini Electronics	69
Godfathers Used Computer Syndicate	28, 29 & 30
Greywolf Technologies	45
Guenther Computer Products	20
H&M Disk Drive Service	109
Harmony Video & Computers	23
I. C. Express	199
JDR Microdevices	138, 139, 140, 141 & 142
Jameco Electronics	82 & 83
L-Com Data Products	67
Leo Electronics	113
Lifestyle Computer Products	175
LogicSoft	12
Lolir Electronics Corp.	200 & 201
Lycor Computer Marketing	16 & 17
Magnetic Media of New England	34 & 35
Magnum PC	272
Mendelson Electronics	76
Micro-Buy, Inc.	97
Micro Computer Concepts	43
Micro Data Supplies	210
Micro Peach Computers	257
Microprocessors Unlimited	211
Micro Supply Organization, Inc.	36, 37 & 38
Microtek, Inc.	89
Midwest Micro & Peripherals	2, 3, 27, 52, 145, 270 & 271
MIX Software	39
N.D.R.C.	243
Otto Electronics	26
P C Network	226 & 227
Payload Computer Services	231
Peripherals	177
Printers Plus	13
Proto PC	262 & 263
SGC	244
Sabet Electronics	246
Scottsdale Systems	5 & 99
Shepherd Marketing	9 & 267
SKORA Supply	215
Super Price, Inc.	157
Team Computer Products	205
True Data Products	189
Tussey Computer Products	31
USA FLEX	32
Unicorn Electronics	40
Unitech	101
United Computer Resources	222 & 223
V.I.P.C.	238
Weber & Sons	68
Westek Computer Group	6
Western Systems & Components, Inc.	255
White House Computers	183
Wholesale Outlet	245
Wolff Computer & Electronics	260 & 261
World Trade	258 & 259

C O M P U T E R P R O D U C T S

Compuclassics

SOFTWARE

DATA BASE MANAGEMENT

ALPHA SOFTWARE Our Price
Data Base Manager II 170.00

ASHTON TATE
dBase III 369.00

FOX & GELLER
QuickCode III 145.00
QuickReport III 145.00
dGraph III 145.00

LEADING EDGE
Nutshell 79.00

M.D.B.S.
Knowledge Man 249.00

MICROPRO
InfoStar + 189.00

MICRORIM
rBase 5000 359.00
Extended Report Writer 89.00

MICROSTUF
Infoscope 125.00

NANTUCKET
Clipper (dBase III Compiler) 429.00

WORD PROCESSORS

LEADING EDGE
with Merge & Spell 140.00

LIFETREE
Volkswriter Deluxe 149.00

MICROPRO
Wordstar 179.00
Wordstar Propak 249.00
Wordstar 2000 245.00
Wordstar 2000 Plus 295.00

MICROSOFT
Word 239.00

MULTIMATE
Multimate 229.00

OBERON
Oberon Omni-reader 469.00

SAMNA
Samna Word III 249.00
Samna + 339.00

SATELLITE SOFTWARE
Word Perfect 4.0 229.00

INTEGRATED SOFTWARE

ALPHA SOFTWARE
Electric Desk 189.00

ASHTON TATE
Framework 369.00

LOTUS
Symphony 435.00

SOFTWARE GROUP
Enable 339.00

SOFTWARE PUBLISHING

PFS Family
Write 80.00
File 80.00
Graph 80.00
Access 80.00
Plan 80.00
Report 69.00
Proof 60.00

XANARO
Ability 285.00

GRAPHICS

DECISION RESOURCES
Chartmaster 230.00
Signmaster 175.00

DIGITAL RESEARCH
Dr Draw 195.00
Gem Draw 95.00

I.M.S.I.
PC Paintbrush w/ Mouse 129.00

MICROGRAFX
PC Draw 249.00

MICROPRO
Chartstar 149.00

MICROSOFT
Chart 159.00

PROJECT MANAGEMENT

BREAKTHROUGH
Timeline 225.00

HARVARD SOFTWARE
Total Project Manager 245.00

MICROSOFT
Project 159.00

SCITOR
Project Scheduler 5000 269.00

SORCIM / IUS
Superproject 229.00

SPREADSHEETS

LOTUS
Lotus 1-2-3 309.00

MICROSOFT
Multiplan 129.00

SORCIM / IUS
Supercalc III Release 2 199.00

COMMUNICATIONS

HAYES
Smartcom II 95.00

MICROSTUF
Crosstalk XVI 99.00
Remote 99.00
Transporter 145.00

WOOLF
Move-it 95.00

ACCOUNTING

G.N.P.
C.P.A. + 359.00

I.U.S.
All Modules 279.00
Payroll 329.00
Easy Plus 55.00

OPEN SYSTEMS
All Modules 339.00
Business Basic Interpreter 165.00

REALWORLD
All Modules 399.00

PROGRAMMING LANGUAGES

BORLAND INTERNATIONAL
Turbo Pascal 3.0 35.00
With 8087 59.00
With 8087 & BCD 75.00
Turbo Toolbox 30.00
Turbo Tutor 19.00
Graphix Toolbox 30.00

DIGITAL RESEARCH
C Basic Compiler 360.00

LIFEBOAT ASSOCIATES
Lattice C Compiler 299.00

MICROSOFT
Fortran Compiler 229.00
Pascal Compiler 199.00
Macro Assembler 95.00
C Compiler 249.00

UTILITIES

BORLAND INTERNATIONAL
Sidekick 30.00
Sidekick (Unprotected) 45.00
Superkey 40.00

CENTRAL POINT
Copy II PC 29.00

DIGITAL RESEARCH
Gem Desktop 32.00

FUNK SOFTWARE
Sideways 35.00

PETER NORTON
Norton Utilities 55.00

QUAID SOFTWARE
Zero Disk 55.00

ROSESOFT
Prokey 89.00

SIMON & SCHUSTER
Typing Tutor III 32.00

SOFTWARE ARTS
TK Solver 259.00

UNISON
Printmaster 32.00

WARNER SOFTWARE
Desk Organiser 59.00

PERSONAL MANAGEMENT

CONTINENTAL SOFTWARE
Home Accountant Plus 82.00

LIVING VIDEOTEXT
ThinkTank 119.00

MECA
Managing Your Money 105.00

MONOGRAM
Dollars And Sense 129.00

HARDWARE

MONITORS

AMDEK Our Price
Amdek 310A 159.00

PRINCETON GRAPHICS
Max 12-E 169.00
HX-12 479.00
SR-12 599.00
Scan Doubler 179.00

PRINTERS

EPSON
FX 80 Plus 309.00
FX 100 Plus 489.00
LQ 1500 919.00

NEC
2250 750.00

OKIDATA
All Models CALL

TOSHIBA
1340 579.00
351 1315.00

MEMORY AND MULTIFUNCTION BOARDS

AST RESEARCH
Sixpak Plus w 64K 255.00
Advantage w 128K 390.00
Megapack II w 64K 265.00

GENOA SYSTEMS
Spectrum 339.00

HERCULES
Graphics Board 309.00
Color Card 149.00

PARADISE
Modular Graphics Card 265.00
Five Pack with O K 159.00

QUADRAM
Quadboard 64K 199.00

MODEMS

HAYES
1200 B 369.00
1200 389.00
2400 679.00

MISCELLANEOUS

KENSINGTON
Masterpiece 89.00

KEYTRONICS
5151 Keyboard 175.00

MICROSOFT
Mouse 129.00

Call for prices on IBM computer systems and for any item not included in this pricelist.

1 818 705-1895 US
1 800 231-6603 CA
1 800 328-4473 US

ADVANTAGES

- We welcome corporate accounts.
- Free technical support.
- Immediate replacement of defective goods.
- Bulk discounts.

TERMS: All prices subject to change. No surcharge for VISA or MasterCard. 2% surcharge American Express. No returns without RA#. Short shipments must be notified with 48 hours. 15% restocking fee on non-defective goods; \$3.00 C.O.D. charge. Shipping \$4.00 per item, less on bulk orders. (\$8.00 Blue Label).

Order desk & technical support open:
8 a.m. to 6 p.m. Monday - Friday
10 a.m. to 2 p.m. Saturday

6924 CANBY ST. SUITE #118 RESEDA, CA 91335

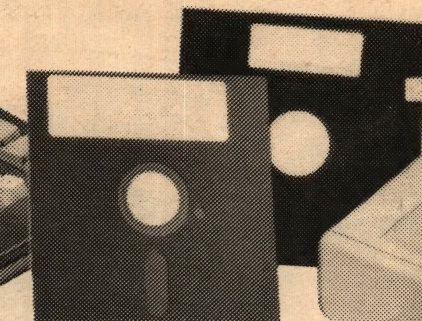
MUST LIQUIDATE TOTAL Personal Computer System

At Far Below
Dealer Cost!



Carries easily
as a suitcase!
Plugs into 115V outlet!

Factory Reconditioned with
Factory Warranty!



GREAT GIFT IDEA
FOR STUDENTS!



Sorry, we're not permitted to **PRINT** the famous brand-name.
BUT, we CAN "tell all" if you call us **TOLL FREE: 1-800-328-0609!**

THE COMPUTER

Snap-on computer keyboard! 64K RAM, 20K ROM. Full-size typewriter keyboard. Upper and lower case letters, numerals, symbols, reverse characters. 2 cursor control keys, 4 function keys, programmable to 8. Music synthesizer with 3 independent voices, each with 9 octave range. Input/output ports accommodate . . . user, serial, ROM cartridge, joysticks, external monitor, phone modem.

Built-in disk drive! Intelligent high speed unit with 5 1/4" floppy disk recorder. 170K formatted data storage; 35 tracks. 16K ROM. Uses single sided, single density disk. Serial interface. Second serial port to chain second drive or printer.

Built-in color monitor! Displays 40 columns x 25 lines of text on 5" screen. High resolution. 320 x 200 pixels. 16 background, character colors.

Built-in ROM cartridge port! Insert ROM program cartridge. Multitude of subjects available in stores across the nation!

Mfr. List Price **\$995.00**

Liquidation
Priced
At Only

\$388

Item H-683-63631-00 Ship, handling: \$20.00

THE PRINTER

Print method: Bi-directional impact dot matrix.

Character matrix: 6 x 7 dot matrix.

Characters: Upper and lower case letters, numerals and symbols. All PET graphic characters.

Graphics: 7 vertical dots — maximum 480 columns. Dot addressable.

Character codes: CBM ASCII code.

Print speed: 60 characters per second.

Maximum columns: 80 columns.

Character spacing: 10 characters per inch.

Line feed spacing: 6 lines per inch in character mode or 8 lines per inch selectable. 9 lines per inch in graphics mode.

Line feed speed: 5 lines per second in character mode. 7.5 lines per second in graphics mode.

Paper feed: Friction feed.

Paper width: 4.5" to 8.5" width.

Multiple copies: Original plus maximum of two copies.

Dimensions: 13"W x 8"D x 3 1/4"H. Wt.: 6 1/2 lbs. Power: 120V AC, 60 Hz.

Mfr. List: **\$200.00**

Liquidation
Priced At

\$118

Item H-683-63831-00 Ship, handling: \$7.00

THE SOFTWARE

"Easy Script" One of the most powerful word processors at any price! Cut re-typing, create documents from standard paragraphs, do personalized letters, see and change a document before it is printed. Instruction manual has extensive training section that simplifies use . . . even for someone who has never used a computer or word processor before!

"The Manager" A sophisticated database manager for business or home use. Business uses: accounts payable/receivable, inventory, appointments, task manager. Home uses: mailing lists, home inventory, recipes, collection organizer, investment tracking, checkbook balancing. School uses: research article index, gradebook.

Mfr. List: **\$73.98**

\$24

Liquidation Price

Item H-683-64011-03 Ship, handling: \$3.00

**BUY INDIVIDUAL UNITS OR
GET THIS ULTRA-FAMOUS
SYSTEM AT ONE LOW
PACKAGE PRICE!**

**TOTAL Personal Computer System
available at FAR BELOW dealer cost!**

Mfr. Sug. Retail . . **\$1,268.98**

**TOTAL
PACKAGE
PRICE**

\$488

Item H-683-64011-02 Ship, handling: \$24.00

Compatible with above Computer System (Not included in package price.)

JOYSTICKS (Set of 2)

Mfr. List: **\$59.90 pr.**

\$18 pr.

Liquidation Price

Item H-683-63622-01 S/H: \$6.00 pr.

64 MODEM

Mfr. List: **\$124.95**

\$44

Liquidation Price

Item H-683-63646-00 S/H: \$4.00



Credit card members can order by phone,
24 hours a day, 7 days a week.

Toll-Free: 1-800-328-0609



Your check is welcome!
No delays when you pay by check!

C.O.M.B. CO.

Authorized Liquidator

14605 28TH AVENUE NORTH
MINNEAPOLIS, MINNESOTA 55441 3397

SEND ME THE ITEMS I HAVE LISTED BELOW

Price subject to change after 60 days. Sales outside
continental U.S. are subject to special conditions.
Please call or write to inquire.

Item No.	How Many	Item	Price	Ship/ Handl.

C.O.M.B. CO.®

Item H-683

14605 28th Ave. N. / Minneapolis, MN 55441-3397

Send the items indicated at left. (Minnesota residents add 6% sales tax. Please allow 3-4 weeks delivery. Sorry, no C.O.D.)

☐ My check or money order is enclosed. (No delays in processing orders paid by check, thanks to TeleCheck.)

Charge: ☐ MasterCard® ☐ VISA ☐ Diners Club

Acct. No. _____ Exp. _____

PLEASE PRINT CLEARLY

Name _____

Address _____

City _____

State _____ ZIP _____

Phone _____

Sign here _____

PERIPHERAL POWER

1. Model# 55H-for 1 full size or 2 half height floppies \$85.

2. Model# FD-PC5-IBM lookalike for up to half height hard disks \$295.

3. Model# 55V-vertical mount 2 half height floppies \$65.

4. Model# DH5-for 2 full size floppies \$125. Hard disk version \$295.

5. Model# DHHH8-for 2 half height 8 inch drives \$299.

6. Model# FD-PC8-IBM lookalike for 2 half height 8 inch \$299.

7. Model# 5DV-For vertical mounting 2 full size floppies, \$85. HARD DISK version \$125.

8. Model# FD-PCjr.-for IBM-jr. add on drives. CALL!

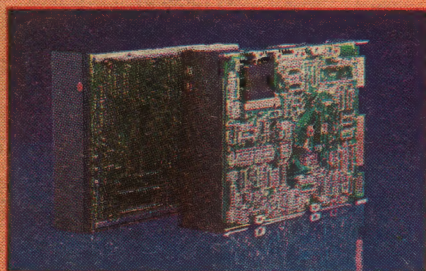
9. Model# DHHH5-for 2 half height floppies, \$125. Hard disk version \$295.

10. Model# SH8-for up to 2 half height 8 inch or 1 full size. \$225.

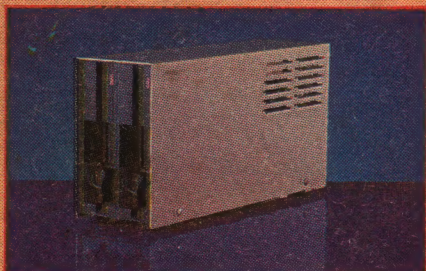
11. Model# DH8-for 2 full size 8 inch drives \$295.

12. Floppy and Hard Drives-CALL!

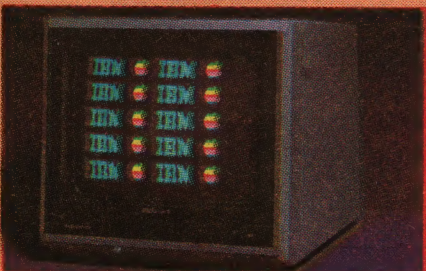
All assembled enclosures now carry a 2 year warranty!



Hard Disk Systems for IBM & compatibles, 10Mb \$550. 20 Mb \$795. external, 10Mb \$845. 20 Mb \$1090.



Teac 80 track system, single \$229. dual \$363.

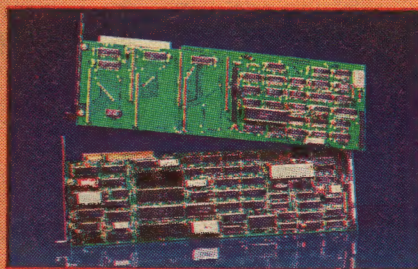


Taxan 415 \$299. (made for ACORN)

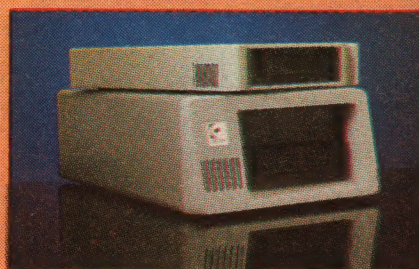
Molex Connectors • Diskettes • Transformers for drive power supplies
External floppy cable IBM • Ribbon Cable • Power General H.D. switcher
3 mm screws • RGB cables • 4164 • QDC Connectors • 7805 • 7812
78H05 • 78H12 • Ampro Computer • Blank Plates • Parts of all Types
(small components) • C1117 "Y" 5 1/4 adaptor • IBM Color boards
Compaq Floppy Mounting Kit • DB Connectors • DC-1000 cartridges
Hard Disk Controllers • Fans • 100-8 • 200-8 • Maynard Boards • H-89
Hard Disk Systems • Printer Cables • Irwin Tape Backup Systems • IBM-PCjr
Floppy Controllers • Magnolia DD Controller • Magnolia SASI Controller
Taxan Color Monitors • SA-455 • Teac 55F • Xebec 1410A Sasi Controller
Entire line of **Mitsubishi Drive Products**

Hard Disk Systems for: H89 • IBM-PC • IBM-XT • IBM-AT • Zenith 150
Zenith 160 • Compaq • IBM compatibles

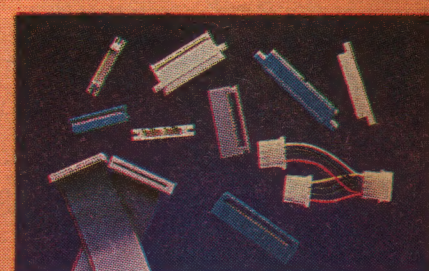
SALE: FDD-200-8, DS/DD 8" \$185. each



IBM and compatible boards of all types



Irwin tape backup (complete system only) \$795.



Custom cables & connectors of all types



Sentinel dial a disk rainbow pack \$30.



130 watt PC to XT power supplies \$139.

"...(Floppy Disk Services) is one of the few mail order houses that enthusiastically does custom work; the technicians there can assemble virtually any desired floppy or hard disk system to order..."

Jeff Duntemann
Technical Editor, PC Tech Journal

Tech Help or Info:
(609) 799-4440

Toll Free Order Line:
(800) 223-0306

PAYMENT POLICY —
We accept MasterCard, VISA, personal checks and Money Orders. We reserve the right to wait 10 working days for personal checks to clear your bank before we ship. All shipping standard UPS rates plus handling. NJ residents must add 6% tax.

Floppy Disk Services, inc is entering our 7th year of supplying disk drives and custom enclosures to the computer industry. Companies that demand quality such as CBS-TV, IBM and NASA to name a few, purchase our products. Space restrictions do not allow us to show all our products, so call toll free for our FREE catalog of products. Or better yet, let one of our sales staff help you make the right choice...Ask about our REPLACEMENT warranty policy.

Dealer inquiries invited. All products available in OEM quantities. Prices and specs subject to change without notice.



**FLOPPY
DISK
SERVICES
INC.**

39 Everett Dr., Bldg. D, Lawrenceville, NJ 08648